AN

ETYMOLOGICAL DICTIONARY

OF THE

CHINANTEC LANGUAGES

Studies in Chinantec Languages

Volume 1

By Calvin R. Rensch

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An Etymological Dictionary of the Chinantec Languages

Studies in Chinantec Languages 1

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Calvin R. Rensch

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Contents

Dedication vii

Acknowledgment ix

References xi

Map of Chinantec Region of Mexico xii

Introduction
1 Dialect Variation 3
2 Phonological Developments 11
3 Ongoing Issues 15
4 Proto Chinantec Morphology 21

Dictionary
Explanatory Notes 31
Etymological Dictionary 33

Appendices
Conventions 129
A Reflexes of Proto Chinantec Consonants . . . 131
B Reflexes of Proto Chinantec Nuclear Elements . 139
C Reflexes of Proto Chinantec Prosodic Elements . 171

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To my wife
Carolyn

...who has shared with me all the years of study of the Chinantec languages and the many pleasures of living our lives with a host of Chinantec friends,

...who has contributed to our understanding of the Chinantec languages through continuing discussion of structure and usage,

...and who, during times when the project had to be set aside, encouraged me to bring this volume to completion.

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Judi Lynn Anderson	Comaltepec Chinantec
Jaci Bernhardt	Tlacoatzintepec Chinantec
Mabel Lewis	Tlacoatzintepec Chinantec
William R. Merrifield	Palantla and Valle Nacional Chinantec
Wanda Pace	Comaltepec Chinantec
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James Rupp	Lealao Chinantec
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David O. Westley	Tepetotutla Chinantec

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Map 1
Chinantec Region of Mexico

Introduction

Figure 1
Intelligibility testing scores
among the Chinantec languages

	Test Points																		
	Oj	**U**	**Tl**	**Ch**	**M**	**S**	**Qe**	**Tp**	**Pa**	**VN**	**Oz**	**Ll**	**To**	**RC**	**A**	**Le**	**Qi**	**Y**	**Co**
Reference Points																			
Oj		31		20	47														
U	43		84	20	99	45	56		69										
Tl		48		76	100	66	100												
Ch	31		85			56				71									
M																			
S	49	32	74		73		79			40									
Qe																			
Tp			15			11			78								7	12	7
Pa	39	33						59		70	63								
VN				13					72		22								
Oz									54	53		43			23				
Ll											22		100	83	68				
To																			
RC																			
A												87	97	97					
Le												27	28		24				
Qi								60										88	69
Y								48									100		76
Co															79		87	71	

1

Dialect Variation

The Chinantec people[1] of northern Oaxaca, Mexico speak a group of moderately differentiated languages. That these languages are related has been recognized since the days of first European contact, when these peoples and languages were introduced to the Spanish by their Aztec culture brokers with the single label *chinanteco.*

On the basis of dialect intelligibility test results (Egland 1978:12) fourteen mutually unintelligible languages have been recognized within the Chinantec language family. When intelligibility scores between two dialects fell below approximately the 80 percent range the dialects were recognized as separate languages. In some areas speakers understand less than 50 percent of the language most closely related. Within a number of the language areas so defined there are smaller but locally recognizable differences.

The present study is based on data from 23 Chinantec-speaking communities.[2] The intelligibility testing reported in the Egland study involved 19 of these communities (plus seven others). The intelligibility scores for those 19 communities are presented in Figure 1.[3]

It is of interest to note the extent to which the intelligibility is not reciprocal between certain pairs of languages. People of Palantla understand 69 percent of the speech of Usila while people of Usila understand only 33 percent of the speech of Palantla. Similarly, Valle Nacional understands

---

[1]The 1970 national census indicated that there were more than 55,000 speakers of these languages.

[2]Oj Ojitlán; U Usila; Tl Tlacoatzintepec; Ch Chiltepec; M Mayultianguis; S Sochiapan; Qe Quetzalapa; Z Zapotitlán; Tp Tepetotutla; Pa Palantla; VN Valle Nacional; Oz Ozumacín; Ll Lalana; Lc Lacova; Pe Petlapa; To Teotalcingo; RC Río Chiquito; A La Alicia; Le Lealao; Lt Latani; Qi Quiotepec; Y Yolox; Tm Temextitlán; Co Comaltepec

[3]Scores are taken from Egland 1978:15.

53 percent of the speech of Ozumacín while Ozumacín understands only 22 percent of Valle Nacional. Lalana understands 87 percent of Tepinapa while the latter understands only 68 percent of the former. The scores for Quiotepec and Comaltepec are 87 percent and 69 percent, respectively.

This leads to the observation that intelligibility testing subjects from some language areas are simply more successful in understanding the speech of other areas than are their counterparts in those areas in understanding their speech. For example, the Palantla people scored 53 total points higher than those in other areas did on the speech of Palantla. Those in Valle Nacional had a plus 80 score, Lalana a plus 42 score while the people of Usila had a minus 86 score, Ozumacín a minus 34 score. Within the highlands the Quiotepec people scored 42 points higher than did the people of Comaltepec. So, we may conclude that not only is intelligibility not reciprocal between certain pairs of languages but that speakers of some languages score overall considerably higher than do some of their communication partners from other areas.

The fourteen Chinantec language areas proposed on the basis of intelligibility testing (Egland 1978:12) are as in (1).

1. Oj	6. Tp	11. A - RC - Te - Ll
2. U	7. Tlatepusco	12. Le
3. Tl - M - Qe	8. Pa	13. Qi - Y
4. Ch	9. VN	14. Co
5. S	10. Oz	

Swadesh (1960) performed calculations of glottochronology on lexical materials from several Chinantec languages. He concluded that within Chinantecan there was an internal divergence of 15 minimum centuries, although it is not certain whether the word lists at his disposal provided a truly representative sample of the diversity. His calculation of 15 minimum centuries for the Chinantec languages may be compared with 16 minimum centuries for Otomi-Mazahua, 24 minimum centuries for Zapotecan, 25 minimum centuries for Popolocan, and 39 minimum centuries for Mixtec-Cuicatec-Amuzgo.

Internal subgroupings among the Chinantec languages may be noted on the basis of structural similarities shared by some languages and not by others. Phonological differences provide one useful type of structural information to be examined in this way. We may analyze 47 phonological changes which have taken place in more than one of the Chinantec language areas. Of these 47 we find that Ojitlán speech has participated in 32 of the innovations and is the phonologically most innovating area. By contrast,

Comaltepec has participated in only four of the innovations and is the phonologically most conservative area.

The major Chinantec language areas have the following scores:

(2)	Oj	32	VN	12
	U	27	Pa	11
	Tl	24	Le	10
	S	24	Ll	9
	Tp	23	Oz	7
	Qe	22	Qi	6
	Ch	21	Co	4

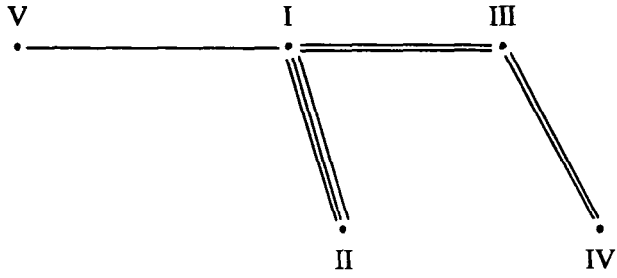
It should be pointed out that while the first seven language areas cluster within a spread of eleven and the second seven language areas cluster within a spread of only eight, the gap between the two groups is nine. This seems to suggest a more innovative northern grouping, ending with Tepetotutla, and a more conservative southern grouping, beginning with Palantla.

When we compare Chinantec language areas by pairs we find that with some pairs both languages have undergone all of the phonological changes of the less innovating partner—in other words, they share 100 percent of the possible shared phonological innovations. Other pairs of languages have no phonological innovations in common. There are four pairs of languages grouped by sharing 100 percent of the possible shared phonological innovations: Tp-Pa, VN-Oz, Ll-Le, and Qi-Co. This leaves the languages of the Oj-U-Tl-Ch-S-Qz area. At the 88 percent threshhold every one of those six languages is linked to at least one other language in that grouping. At the 75 percent level every language in that grouping is linked to every other. Thus, we may recognize on this basis four relatively tight groupings and one more loosely connected grouping. Below the 75 percent threshhold we find more remote connections among the five groupings. These lower figures for percentage of shared innovations are shown in (3).

(3)		II	III	IV	V
I	Oj-U-Tl-Ch-S-Qe	74%	67%	44%	50%
II	Tp-Pa		58	56	0
III	VN-Oz			71	25
IV	Ll-Le				25
V	Qi-Co				

These figures suggest that groups I and II are relatively similar. Groups III-IV and I-III are less so and almost equally similar, both groups falling close to a 70% figure. Group II is not particularly similar to either III or IV. Group V is markedly dissimilar to all other groups, group I being the closest to it of any. These relationships are presented in the schema of (4).

(4)



It is also instructive to observe the number of innovations shared by particular groupings of Chinantec languages. It is not surprising to find that the largest bundle of phonological innovations (7) links Oj, U, Tl, Ch, S, and Qe. The next largest bundle (5) includes Tp with the first group, and the next largest bundle (4) includes both Pa and Tp with the first group. The groupings of languages determined by such bundles of innovations are presented in (5).

(5)	2	Oj	U	Tl	Ch	S	Qe	Tp	Pa	VN	Oz	Ll	Le	
	4	Oj	U	Tl	Ch	S	Qe	Tp	Pa					
	5	Oj	U	Tl	Ch	S	Qe	Tp						
	7	Oj	U	Tl	Ch	S	Qe							
	2	Oj	U	Tl	Ch									
	2	Oj	U											
	3												Qi	Co

These findings largely substantiate the groupings proposed by percentages of possible shared phonological innovations. However, there are two departures worthy of note: The VN-Oz and Ll-Le groupings (III and IV) are not here distinguished, and the grouping of Tp and Pa is here divided by a bundle of five innovations which took place in Tp but not in Pa.

Further useful observations about subgrouping may be made on the basis of shared lexical changes. The entries of this dictionary provide considerable data concerning lexical changes that have occurred in the Chinantec languages through time and geographical space. From the corpus of this dictionary at least 36 sets have been identified which reflect lexical changes in which each of the variants is supported by at least two languages. In some sets phonologically dissimilar forms are found in different areas. In other

sets forms which are phonologically similar but not relatable by processes now recognized are found in different areas. In a few sets a term has been found in one group of languages but either no term at all or a Spanish loan has been found in the others. Of the 36 sets with competing morphs 14 of them have an innovating form in Oj, U, Tl, Ch, S, and Qe. In five more sets a distinctive form is found in those six languages and in Tp and Pa. In three sets VN and Oz are added to the previous grouping. Seven sets distinguish Ll and Le from all others, while seven others distinguish Qi and Co from all others. Interestingly, this criterion suggests precisely the same five groupings indicated by percentages of possible shared phonological innovations.

It is tempting to compare the general picture that emerges from the application of these linguistic criteria with the scanty picture we gain from historical documents written shortly after the conquest, even though the historical picture presents a relatively late period. From two colonial documents called *relaciones* we learn of two centers of the Chinantecs, one at Usila and one at Gran Chinantla. The first center we can assume was at or close to the present site of Usila. The second center apparently was located in a river valley to the south, probably in the Valle Nacional river valley but not necessarily at the present site of Valle Nacional. Also, rather early religious documents were produced in Yolox. The picture of centers located in the northern lowland river system, the southern lowland river system, and the western highlands fits well with the linguistic groupings and with the major topographical features of the Chinantla. The western highlands are separated from the lower Chinantla by the high and difficult terrain of the Cerro Pelón area. These languages are the phonologically most conservative ones (grouping V) and are distinguished by several of the lexical innovations. The northern and southern river systems are divided by a transverse spur of the Sierra Madre called the Cerro Armadillo, which runs deep into the lowlands nearly to the confluence of the Santo Domingo and the Valle Nacional rivers. The southern lowland area, represented by the Gran Chinantla and including the VN-Oz and Ll-Le areas is the more conservative of the two both phonologically and lexically. The northern lowland area, represented by Usila and including the Oj-U-Tl-Ch-M-S-Qe area is the most innovating in both respects. The Tp and Pa areas are located astride the Cerro Armadillo and serve as a transition zone between the northern and southern lowland areas.

It is of interest to compare this division of the Chinantla into regions on the basis of phonological and lexical criteria with the earlier systems proposed by Bevan, Weitlaner and Cline, and Merrifield based on cultural and ethnolinguistic factors.

Bevan (1938) recognized Central (hu-hmei), North and Western, Highlands (dzah-hmi), and Southeastern (wa-hmi) groups on the basis of cultural traits, including traditional dress, as well as statements of local people about similarities.

Weitlaner and Cline (1962) maintained the system of Bevan with the exception that they divided the second group into Northern (Oj and U) and Northwestern (Tl and S) groups.

Merrifield (1966) identified six major Chinantec centers on the basis of morphemically simple toponyms and "animal" names for the people of each center or region. Since his study drew on lexical items from Palantla it is natural that the centers so identified should be found primarily in the central area. This should not be viewed as a serious limitation since this area almost certainly includes the most ancient Chinantec population centers.

Figure 2 compares these three systems with that of the present study in terms of the principal linguistic areas.

In general, the four systems are quite similar. Bevan, Weitlaner and Cline, and the present study agree that the southeastern and highlands areas are clearly distinct. Weitlaner and Cline and Merrifield agree in dividing Oj-U from Tl-S. While the present study would suggest that this is not a major linguistic break, there is no question that significant linguistic differences separate these two areas. Merrifield's study identified four cultural centers in the central region. This study indicates that the hill people of Tp and Pa cluster linguistically as opposed to the valley people of VN and Oz. Inasmuch as VN and Oz are probably the areas from which our linguistic data are most scanty, we can expect that this picture will be clarified as more information becomes available from these central valley areas.

Figure 2.
The division of the Chinantla
into regions

	Bevan	Weitlaner and Cline	Merrifield	Present Study
Oj	North and West	Northern (IV)		I
U			Usila (wasp)	
Tl		North-western (V)	Chiltepec (type of insect)	
S				
Tp	Central (hu-hmei)	Central (I)	Tepetotutla (?)	II
Pa			S.P. Tlatepusco (lizard)	
VN			Valle Nacional (hawk)	III
Oz			Ozumacín (emaciated)	
Ll	Southeast (wa-hmi)	Eastern (II)		IV
Le				
Qi	Highlands (dzah-hmi)	Western (III)		V
Co				

[blank]

2

Phonological Developments

The inventory of elements of the Proto Chinantec phonological system has been reconstructed as in (6)-(8).

(6) **Consonants and laryngeals**

*p	*t	*k	*kʷ	*ʔ
*b	*z	*g	*gʷ	
	*s			*h
*m	*n	*ŋ		
*w	*l	*y		
	*r			

There were clusters of *ʔ or *h and each of the six voiced continuants, both oral and nasal, and *g.

(7) **Nuclear elements**

palatal		nonpalatal	
*i	*iu	*ɨ	*u
*e	*ia	*ə	*a
*(V)·			
*(V̰)			

Vocalic length could occur with any nucleus with or without final *ʔ. Vocalic nasalization could occur after any voiceless stop, *w, *r, or *y; always occurred after nasals; but (almost) never after any voiced stop or *l.

(8) **Prosodic elements**

*H	*L
*(V́)	

The two tones, high and low, occurred in combinations *HL, *LH, and *HLH. The ballistic accent could occur with both tones and all three combinations and with most combinations with length and final *ʔ.

A simple summary of the major sound changes through which the contemporary languages developed is provided here. The reader is referred to the charts provided in the appendices for a fuller picture of the phonological developments in various environments in the several languages.

The following are the major sound shifts affecting the consonants and laryngeals:

(1) devoicing of voiced stops *b, *z, *g^w to p, c, kw/u in Oj-Z and Qi and the devoicing of *g to k in Oj-Z but not in Qi.

(2) loss of *ʔ from *ʔC clusters in Tl and Le and the loss of *ʔ from the *ʔg cluster in Oj-Le, i.e., in all but Qi-Co.

(3) loss of the labial element from *k^w and *g^w before a contemporary rounded vowel in U, Qe-Oz, which are derived variously from *ɨ, *i, *e, or *a; also, the loss of the labial element from *w, *hw, and *ʔw before a contemporary rounded vowel in U-Oz except S or Z, which are derived variously from *ɨ, *i, *e, or *a.

(4) change from affricate *z to stop t^y in U and Qi and to stop g in Y, Tm, and Co before *i and *iV.

(5) merger of *n and *ŋ before *i as ny in M, S, and Qe and as ñ in Oj and Ll-Le.

(6) change of *hy to s(y) in Tl-Pa and to x in Qi and Y.

(7) change from sibilant *s to flat fricative θ in Tl-Z and to affricate c in Tp-Pa everywhere and to affricate c in VN-Oz before *i and *iV.

(8) plosivization of voiced continuants *w and *y: *w to gw in Tl-Ch and to g before *ɨ in U and M; *y to d(y) in U-Z and to g(y) in Tp-Oz and Tm.

(9) loss of *r everywhere in VN-Oz and before high vowels in Ll-Le.

The following are the major sound shifts affecting vowels and other nuclear elements:

(1) backing of *i to ɨ- and u-like reflexes after *k^w, *g^w, *w, *hw, and *ʔw in Oj-Pa and of *ɨ to u-like reflexes after the same consonants in Oj-VN, Qi, and rarely Oz.

(2) backing of *e to a or o after any labial in all languages and of *ə to o after any labial in Oj, Le, and Qi.

(3) fronting of *ɨ, *u, and *a to i-, iu-, and ia-like reflexes after *z in U, Qi-Co.

(4) fronting of *iu to merge with *i everywhere in Oj, U, and Tp, and in many environments in Tl-Z.

(5) rounding of front vowel *i· to ö in Oz after *g^w, *w, and *hw.

(6) quality reversal of vowels before *ʔ, i.e., V = V·ʔ and V· = Vʔ: reversal of *a and of *ia in Oj-Oz, reversal of *u and of *iu in U-Z, and reversal of *i and of *ɨ regularly in U and less pervasively in the languages of the Tl and S type.

(7) loss of length in accented syllables closed by *ʔ in Ll, Le, and Co.

(8) change of the quantity difference to a quality difference in Oj-VN, i.e., *V became V_1V_2 or Vy, Vw, or Vg, especially so with long vowels.

(9) multiple reflexes conditioned by tone in Tl-Pa and especially so in Pa.

(10) change of *Vŋ to Ỹ in Oj-Tp and Oz and occasionally in Pa and perhaps in VN; backing of horizontal tongue position and shifting to mid vertical tongue position of vowels followed by *ŋ in Pa regularly and to some extent in Ll and U-Qe.

The following are the major sound shifts affecting the tone system:

(1) change of vowel quantity difference to a tone (and vowel quality) difference in Oj-Pa and probably in VN-Oz.

(2) change of difference in presence of the ballistic accent to a tone difference in Oj-U and Qi[4] and largely so in Tl-S and Co even though the ballistic accent does occur in those latter languages.

(3) merger of $*^{H}$ and $*^{HLH}$ in at least some contexts in Oj-U and Tp-Pa.

[4]A new analysis of Qi prosody (Robbins 1968:sec. 2.21) includes three tones and a ballistic accent; in that case Qi may be more like Co.

[blank]

3

Ongoing Issues in Proto Chinantec Phonology

There are several issues relating to the phonological structure of Proto Chinantec for which there is conflicting evidence. Some of these were mentioned in the earlier study of Proto Chinantec phonology (Rensch 1968:109, 110), and some issues are raised here for the first time.

3.1. Voiced stops and nasals. As already noted, there is a distributional constraint between the type of initial consonant and vocalic nasalization. In general, only oral vowels occur after *b, *z, *g, *g^w and *1; only nasalized vowels after *m, *n, and *ŋ; either oral or nasalized vowels after *p, *t, *k, *k^w, *ʔ, *s, *h, *w, *y, and *r. Because of this fact the phones *[b] and *[m], *[z] and *[n], and *[g] and *[ŋ] were observed to be in complementary distribution in the earlier study and were reconstructed as variants of *b, *z and *g, respectively. Furthermore, the clusters *[hg] and *[ʔg] occur only before oral vowels while *[hŋ] and *[ʔŋ] occur only before nasalized vowels. So, they were reconstructed as the clusters *hg and *ʔg. Finally, in general, the clusters *[hw], *[ʔw], *[hy], and *[ʔy] occur only before oral vowels while *[hm], *[ʔm], *[hn], and *[ʔn] occur only before nasalized vowels. So, they were reconstructed as *hb, *ʔb, *hz, and *ʔz, respectively, to parallel *hg and *ʔg. The complementary distribution of these sounds and sequences favors this analysis. So does the fact that in a few sets both *[hw] and *[hm] (or *hbV and *hbY) must be reconstructed either because of reflexes supporting one or the other in the various languages or because of morphophonemic alternation within one or more languages. The same is true of *[hg] and *[hŋ].

However, in this study these sounds are labeled as *b, *z, *g, *hw, *ʔw, *hy, *ʔy, *hg, *ʔg, *m, *n, *ŋ, *hm, *ʔm, *hn, *ʔn, *hŋ, and *ʔŋ. The reasons for the change are as follows:

(1) It reflects the presumed phonetic nature of the phones much more closely.

(2) The development of *w, *hw, and *ʔw; *y, *hy and *ʔy in many languages was parallel and this facilitates the grouping of these phonetically similar sounds.

(3) There is a small but significant number of sets in which nasalized vowels occur after *hw, *ʔw, and *g. In the other labeling there was no convenient way to distinguish, e.g., *[hwY] from *[hmY].

(4) The contemporary Chinantec languages all have a full set of frequently occurring nasal consonants as well as nasalized vowels. This labeling avoids the awkwardness of proposing for the parent of these languages a system that has no element labeled as a nasal consonant. It also avoids the impression that the phonetic sequences hb, ʔb, hz, and ʔz occur in any environment.

3.2. Palatalization of nasals. The velar nasal is palatalized as ñ or ny in nearly all of the languages before *i or *iu. The alveolar nasal is palatalized as ñ in Oj and Ll-Le and as ny in M-Qe in similar environments. As a result, in those languages and in those environments it is impossible to distinguish *n from *ŋ. As may be observed from an examination of the charts in the appendix, the environments in which the palatalization of *n takes place are quite specific and at times appear to be arbitrary. For example, *n is palatalized before *ị· in the Oj, S, and Ll areas. However, *hn is not palatalized before *ị· in any of the areas. There appears to be a contrast between palatalized *n and nonpalatalized *n in the sequence *ʔnị·. In the set *ʔnị·^{HLH} *rope* the nasal is palatalized in all three areas, whereas the other three sets, *ʔnị·^{L} *war,* *ʔnị· *break* and *ʔnị· *avocado,* show no palatalized reflexes in any of the three areas. On the basis of these sets one might postulate both alveolar and palatal nasals (as well as a velar nasal) for the parent language. Thus the set labeled *rope* could be labeled with a palatal nasal and the other three sets labeled with an alveolar nasal. However, this is the only specific environment in which such consistently different sets of reflexes are found. There seems to be insufficient evidence to propose such a contrast. Rather, it is suggested that there was but a single alveolar nasal, which was palatalized in those areas to differing extents in different phonological environments. It is further suggested that the process is one which is still taking place so that in the future a more regular, presumably more uniformly palatalized, picture may yet emerge. The impression of a change not yet worked through uniformly is further heightened by the situation of the nasals before *iụ. In the sets labeled *niụ· no languages have palatalized reflexes. In the set labeled *niụ Oj has a palatalized reflex while Ll does not. In the sets labeled *niụ·ʔ Oj and S have palatalized reflexes, Qe does not have a palatalized reflex, and Ll shows one set with a palatalized reflex and one without. It is difficult to see that reconstructing a palatal nasal would clearly sort out the confusion.

3.3. Syllables without initial consonant. At the end of the dictionary entries is a group of entries reconstructed without initial consonant. A half dozen of the Chinantec language areas distinguish V from CV including ʔV, but in many languages all syllables begin with a consonant. Therefore, it seems worthwhile to substantiate the reconstruction of these sets without initial consonant.

In the set labeled *u·~*iu· *be extinguished, erased* some languages have initial y, some ʔ, some g and some no consonant. The set labeled *iu· is distinguished from those labeled *yu· by different reflexes in U, Pa, Le, Qi, and Co. The form labeled *u· is distinguished from those labeled *ʔu and *ʔu·ʔ (no *ʔu· set has been identified) by different reflexes in Ch, Tp, Pa, VN, Ll, and Le. The sets containing forms with initial g could not be reconstructed as *g since the initial g is found in Tl, Ch, S, and Qe, all languages in which *g has been devoiced to k. Hence, it seems best to regard those languages with forms without initial consonant as reflecting the primitive state of affairs, particularly since they are found largely in the more conservative southern area.

3.4. Consonantal alternations. Several types of consonantal alternations must be recognized for Proto Chinantec. First of all, the fricatives *s and *h alternated morphophonemically in a few verbs: *sa· *he cooks*~*ha· *I cook,* *sụʔ *he breaks in two*~*hụʔ *I break in two.* This is supported by some sets in which some language forms reflect *s while others reflect *h: *sɨ́^{H}, *hɨ/ɨ^{LH} *skirt (chapaneco);* *sa *negative* but Qi ho^{4} *negative.*

A second alternation set involving *hŋ with *h, *s, and *hy is more widely attested:

(9) *hŋ~*h: *hŋia (third-person)~*hạ (first singular) *wait*
*hŋi (third-person)~*hạ (first singular) *sow*
*hŋɨ *become clean* (active), *hɨ *clean* (stative)
*hŋiá^{HLH}, *hą́^{HLH} *porcupine*
*hiu·ŋ, *hŋiu·ŋ *fragile*

*hŋ~*s: *hŋaŋ (past)~*sa·ŋ^{HL} (nonpast) *be baptized*
*hŋa· (past)~*sa· (nonpast) *rise*
*hŋa·(ʔ) (past)~*sa·(ʔ)(ŋ) (nonpast) *be choked*
*sạ· *be pleasing,* but Pa hŋó^{3} (past)

*hŋ~*hy: *hŋa·ʔ^{L} (and *hga·ʔ^{L}) *rot* (active), *hya·ʔ^{L} rotten (stative)
*hya· *lower* (transitive) but Ll hŋo·h^{2} *descend* (past of intransitive)—from *hŋa·

The large majority of verb stems have the same stem-initial consonant throughout the paradigm. However, a number of IRREGULAR verbs show an alternation of initial consonants as well as the more common alternation of vowels. Many of these reflect *s or *z in the third-person form, which alternates with a labial consonant in the second-person and sometimes the first-person singular as well. Examples are cited with a proposed Proto Chinantec form even though some of them have been reconstructed solely on the basis of the Lalana cognate rather than on cognates from various languages.

(10)	go	go home	sit, live	dance	grind	heart
1st sg.	*ni·	*nia?ŋ	*ni	*gʷaŋ	*gʷaŋ	*zɨ
2nd	*gʷa·	*gʷa?ŋ	*ni	*gʷaŋ	*gʷaŋ	*?a·
3rd	*za·	*za?ŋ	*gʷe	*zaŋ	*zɨ	*zɨ
	tell	remove	fish	hold	lie down	
1st sg.	*hwa·	*hwa?ŋ	*hwa?ŋ	*hma?	*ą·	
2nd	*hwɨ·?	*hwa?ŋ	*hwa?ŋ	*hma?	*hma	
3rd	*sɨ?	*sa?ŋ	*sa?ŋ	*są?	*kia·	
	self	know	set afire	smell	drink	
1st sg.	*?ŋia·	*ma·	*hu	*hu·?	*u·?	
2nd	*?wa	*ma·	*hu	*hu·?	*?u·?	
3rd	*?ŋia·	*ŋi/*ŋa	*hɨ	*hɨ·?	*?ɨ·?	

It seems unmistakable that labial consonants are associated with second-person forms. In the case of *hɨ and *?ɨ the vowel is labialized rather than the consonant. The assibilants *s and *z are frequently but not always associated with third-person. Quite possibly this alternation is the vestige of an old set of person-marking prefixes in which a sibilant marked third-person, a labial second-person and possibly a nasal first-person singular.

3.5. Variety of vowel reflexes. The scatter of vowel reflexes in Palantla was noted in Proto Chinantec Phonology (Rensch 1968:109). Since that time data about the vowels of Tl, S, and Tp have become available, and the scatter of vowels has come to be seen as a regional phenomenon from Tl through Pa although the development is perhaps more marked in Palantla than elsewhere. Once the conditioning factors of length, nasalization, final *?, and final *ŋ have been accounted for, there remain two and occasionally more reflexes, especially with the old long vowels. It has come to be seen that tone plays an important part in determining the varying vowel reflexes. For example, *a· has two principal reflexes in Tl: o and ew. The reflex o occurs with Tl 12, 34, and 4 while ew occurs with 2,

3, and 42. Cf. the following Tl forms: to^{12} *seed of the mamey,* tó^{4} *grindstone,* to^{4} *roast,* co^{4} *guilt,* có^{4} *straight,* but tew^{3} *banana,* tew^{3} *hole,* ʔew^{3} *herb,* cew^{2} *sickness.*

Similarly, in Tp *a· has the reflex au with 1́, 2, and 32 and o with other tones. Cf. the following Tp forms: tau^{2} *banana,* tau^{2} *hole,* zau^{32} *straight,* but to^{21} *seed of the mamey,* to^{2} *grindstone,* to^{32} *roast,* ʔo^{21} *mouth,* zo^{21} *sin,* zo^{21} *sickness.* From the forms tau^{2} *banana* and to^{2} *grindstone* and also the pair zau^{32} *straight* and to^{32} *roast* it is evident that when a single tone pattern has more than one historical source, the source must be specified. Tone 2 in Tp comes from *^{L} and *^{LH}. The reflex is o with tone 2 that comes from *^{LH} and is au with tone 2 that comes from *^{L}. Similarly, 32 comes from *^{LH} with and without an accent. With *^{LH} with accent the reflex is au and without accent it is o.

The principal reflexes of *ɨ· in Pa are ay and ɨy. The former occurs with 1, 3, and 32 while the latter occurs with 2. Cf. the following Pa forms: tay^{1} *foot,* ŋi^{1}tay^{3} *machete,* hay^{32} *clear land,* cay^{1} *sand* but zɨy^{2} *dog,* mɨy^{2} *hawk,* mɨ́y^{2} *ball.*

3.6. Stability of complex syllabics *iu and *ia. The complex nuclei *iu and *ia seem clearly to be required in the set of reconstructed syllabics of Proto Chinantec. However, they seem to have been more readily replaced by simple vowels than was the case with other syllabics. As already noted, *iu was replaced by *i reflexes in all environments in Oj, U, and Tp and in many environments in Tl-Z. Three of the four sets labeled *hiu include some language forms that reflect *u rather than *iu. In addition, a number of sets reflecting *ia include forms reflecting the simplex *a but in contexts in which the presence of *a is not explainable in terms of the *V~*iV alternation. Note, for example, the set *ʔia·^{L} *early in the morning* in which the Tl, S, and Qe forms reflect *a· rather than *ia·. Several languages seem to reflect *ą rather than *ią in the pronouns *hnia *we* and *hniá *I.*

Furthermore, the complex syllabics are more limited in distribution. Neither occurs after any labial consonant although the other front syllabics *i and *e may. Neither do they occur following *r nor, of course, *y.

3.7. The status of *ə and *e. The low front vowel *ə and its palatal counterpart *e are relatively rare. They occur most frequently after labial consonants, with some frequency following *h and *ʔ, only occasionally following most consonants and apparently not at all following *y and *z. Their independent status in some environments seems assured, but their distributional limitations may yet furnish a clue to some special source for these vowels.

3.8. *e after *w-like consonants. Since *e and *ia occur only rarely in the same environment, it is possible that some sets labeled as one should

really be labeled the other. Although sets following the *w-labials have been labeled as *e, it should be considered whether these sets should really be labeled as *ia. The following considerations would favor the *ia identification:

(1) Sets labeled *kʷe yield VN kyu and Oz kya. These yV reflexes are characteristic for *ia rather than for *e. Similarly, the Co reflexes for *kʷe and *kʷe· are kwia and kwe·, exactly the usual reflexes of *ia and *ia·. The Ll reflex of *kʷe· is kwä·; again, ä is the usual reflex of *ia.

(2) A few verbs, such as *hwe·ʔ ~ *hwa·ʔ *say,* show an unusual *e ~ *a alternation. A relabeling of the first form as *hwia·ʔ would result in the common *a ~ *ia alternation.

In spite of these considerations the label *e is retained in this study for the following reasons:

(1) The reflexes after *hw, *ʔw and especially *gʷ are normal for *e rather than for *ia. No iV or yV sequences occur in the contemporary languages after those consonants.

(2) Some sets labeled as *hwe and *kʷe have alternants labeled as *hwə and *kʷə, which could not be relabeled as *hwa and *kʷa because of different sets so labeled.

(3) The Proto Chinantec syllable seems to have maintained a kind of balance such that the complex syllabics occurred only after simple, non-vocalic consonants such as *t, *s, *ŋ etc. while the complex syllabics never occurred after the complex semivocalic consonants such as *kʷ or *hw, *ʔy or *z. Such a combination of complex consonant plus complex syllabic would, apparently, have resulted in an unacceptably HEAVY syllable.

3.9. *ɨ and *ə following *l. As observed in a note attached to the set labeled *lɨ ~ *li *happen,* *ɨ has often been replaced by *ə after *l in Ll, less frequently in Oz and VN. This shift seems to have taken place only in verbs. Curiously, the substitution does not seem to have taken place after *hl or *ʔl. Neither has *i been replaced by *e in those *lɨ sets with *li alternants. Since regular reflexes of *ɨ occur in a few sets in those languages, it is not possible to regard these as special reflexes of *ɨ after *l. Although the motivation for the shift is not clear and the vowel alternation patterns in these verbs are anomalous, the shift does not seem to be a recent development since the *lə (< *lɨ) ~ *li *happen* verb has been copied in the morphology of Lalana Chinantec as a derivational affix with two forms li- and la-.

4

Proto Chinantec Morphology

Proto Chinantec morphology included inflectional categories of (a) person-number, (b) gender, (c) tense-aspect, and (d) transitivity. Noun stems could be inflected for category (a). Adjectives could be inflected for categories (a) and (b). Verbs could be inflected for all four. This discussion will deal primarily with verb morphology since in that way all categories will be considered. Since a system of vowel alternations affects the marking of both (a) and (c) it will be considered first.[5]

4.1. Vowel alternation. Proto Chinantec verbs were characterized by a system of vowel alternation, which continues in some form in all contemporary languages. As already observed, the Proto Chinantec vowel system consisted of two sets, a palatal set and a nonpalatal one:

(11)

palatal		nonpalatal	
*i	*iu	*ɨ	*u
*e	*ia	*ə	*a

The corresponding members of the two sets alternate in the paradigm of many verbs. For example, *i alternates with *ɨ, *iu with *u, etc. Many verbs have but a single vowel nucleus with no alternation, and the classes of those which have an alternation and those which do not seem to be arbitrary rather than being related to phonological shape. Those verbs with vowel

[5]Tone alternations are a marker of person-number and tense-aspect in most verbs and of person-number in obligatorily possessed nouns in all Chinantec languages. They also play a large part in the marking of transitivity and a smaller part in marking gender. The patterns of tone substitution are not discussed in this study. They are so extensive and, in spite of considerable study, so poorly understood either synchronically or diachronically that they will require an independent study.

alternations are distributed in three classes depending on the pattern of the paradigm—the L pattern, the U, pattern and the tense pattern.

In the L pattern the palatal nucleus occurs in the first-person plural and the second-person in the past. (In both the L and U patterns the palatal nucleus also occurs in the positive—but not the negative—imperative and the motion verb forms. These will not be discussed further in this connection.) The nonpalatal nucleus occurs in the remaining persons and tenses of the paradigm. The L pattern is represented in (12), where P indicates palatal vowels.

(12)	first sg.	first pl.	second	third
present		P		
future		P		
past		P	P	

The verb *la~*lia *buy* is an example of the L pattern.

The U pattern is like the L pattern except that the palatal nucleus also occurs in third-person forms, as in (13).

(13)	first sg.	first pl.	second	third
present		P		P
future		P		P
past		P	P	P

The verb *na~*nia *open* is an example of the U pattern.[6]

In the tense pattern the nucleus of past-tense forms is nonpalatal while the nucleus of future-tense forms (and present, if any) is palatal. The verb *tu̧·~*tiu̧· *spill* is an example of the tense alternation pattern.

4.2. Gender. Proto Chinantec adjectives and numerals agree with the noun to which they are attributive with regard to gender (inanimate or animate) and verbs agree with the primary noun associated with them (object with transitive and ditransitive verbs and subject with intransitive verbs). Inanimate gender is unmarked, and animate gender is marked by a suffix attached to the adjective, numeral, or verb.

A survey of the markers of animate reference in the contemporary Chinantec languages does not immediately suggest the form of the marker of that category in Proto Chinantec. In most cases the marker includes nasalization—nasalization of the stem vowel in Oj, U, Tl, S, Tp, and Oz (?), postvocalic -ŋ in VN and Co, postvocalic -n in Ll. In some languages the

[6]The L pattern corresponds to Merrifield's distributional pattern B, and the U pattern to his distributional pattern C (Merrifield 1968:39).

marker is primarily a high front vowel or palatal semivowel, but in every case there is some involvement of nasalization. In Tp when the stem is marked by nasalization for animate reference, a third-person subject is marked by a postvocalic -y, except in the case of an intransitive verb when a free subject expression follows. Similarly, in Co, -i is the marker of third-person on stems marked as animate by -ŋ. In Oz third-person is also marked by a suffix -i, but it is not certain whether this has any special relation to forms marked as animate. In Le animate is marked by -y; however, some older speakers use a variant -n after the stem vowel i. Similarly, in Qi animate reference is marked by -i after the stem vowel when that vowel is other than i and by nasalization when the stem vowel is i. It should be noted that this suffix does not occur before the focus marker -mo, which, significantly, begins with a nasal. In Usila the third-person is marked by a suffix -i when no free subject or possessor follows. In Pa most forms marked as animate have a syllable nucleus different from that of the inanimate form, but occasionally a short vowel (and rarely a long vowel) is simply nasalized. The different, oral vowel marking animate gender in Pa usually has a mid vertical tongue position e, ə, o, or back horizontal tongue position o or u. Long vowels frequently show Vw in Pa when marked as animate.

In most languages either a nasal or a palatal marker occurs, or they occur in noncontrastive distribution. However, from Tp and Co, where both occur, it may be seen that the nasal element is primarily a marker of animate reference while the palatal element marks third-person in that environment. Hence, *-ŋ is posited as the Proto Chinantec marker of animate gender.

The markers for animate reference and third-person occurred together frequently, so it is not surprising that in some languages a morpheme something like *-iŋ developed. That seems to have been the case in Lalana. In Ll animate reference is marked by suffix -n and, redundantly, by a set of vowel changes, which are primarily palatalizing. The -n may be seen as the development of *-ŋ and the palatalization of the vowels as the development of *-i. Cf. Ll ʔo· *he buries it,* ʔa·n *he buries him;* lo *he buys it,* lən *he buys him;* ǰa *he places it,* ǰen *he places him.*

In languages throughout the Chinantla the picture is obscured by the development of the old *-n marker of first-person singular, which merged with the results of *-ŋ animate reference. In the Lalana area, for example, the fused form *-iŋ marking animate reference fell together with the marker of first-person singular so that the palatalizing vowel changes that redundantly mark animate reference also occur in first, (and second-) person singular forms.

An almost complete correlation exists between *-ŋ and animate reference. However, there are some forms which have final *-ŋ but which occur with

either animate or inanimate referents, at least in contemporary languages and probably in Proto Chinantec. Cf. *ʔmɨ·ŋ *new (inan. or an.)*. Furthermore, there is a class of verbs with plain stems in the first- and third-persons but which have stems with final *-ŋ in the second-person. Cf. U tie^{32} hnia^{4} *I can endure,* tịą̨ʔ^{32} ʔnei^{3} *you can endure;* Pa tyaw^{3} hní^{2} *(first sg.),* tyą̨ʔ^{31} ʔni^{2} *(second sg.);* Ll ta·n^{23} *(first sg.),* te·hn^{2}nu^{3} *(second sg.),* tä·^{23} *(third).* Such a paradigmatic alternation, although relatively rare, further undermines the complete correlation between *-ŋ and animate reference.

4.3. Transitivity. The Chinantec verb may show up to three states of transitivity: intransitive (one argument—agent or undergoer), transitive (two arguments—agent and patient) and ditransitive (three arguments—agent, patient, and beneficiary).[7] Very few verbs, if any, have varying stems to reflect all three states of transitivity. Many, however, show two states.

The contrast between intransitive and transitive stems is marked primarily by tone differences. In some languages the distinction is further marked by vowel changes, in which case the palatal nucleus marks the transitive stem and the nonpalatal nucleus the intransitive, as in (14).

(14)	**Oj** yą^{23} ʔni^{2}	*come down!*	yą^{31} ʔni^{2}	*lower him!*
	Pa na^{3}	*it opens*	nyé^{32}	*he opens it*
	Ll mɨ^{3}noh^{3}	*it opened*	mɨ^{3}neh^{2}	*he opened it*
	Qi no^{2}	*it opens*	no^{34}	*he opens it*

The ditransitive state is marked by the addition of *-ʔ to the stem. Cf. the following transitive and ditransitive forms meaning *give:* Oj kwo^{1} ʔni^{2}, kwoʔ^{31} ʔni^{2}; Tl kwé^{2}, kwéʔ^{2}; Pa kwɨ^{32}, kwɨʔ^{32}; Qi kwo^{4}, kwoʔ^{2}; Co kwə, kwəʔ. The southeastern languages alone mark the ditransitive state by the addition of length. Cf. the forms equivalent to the ones given immediately above: Ll kwə^{23}, kwə·^{23}; Le kwo^{4}, kwo·^{4}.

It is concluded that in Proto Chinantec the transitive state was marked by a tone difference with or without a palatal vowel change and that the ditransitive state was marked by a final *-ʔ with or without a tone difference.

Almost certainly Proto Chinantec had a device for deriving a stative verb from an active verb root. Cf. the following cognate stative forms meaning *is asleep,* derived from the active root *g^{w}ɨ·ŋ *sleep* by a prefix something like *rɨ^{L}-: Oj rɨ^{2}kwɨ̨^{31}, U ra^{3}kụ^{2}, S rakwụ, Tp rə^{2}guɨ̨^{3}, Pa rɨ^{2}gwé^{3}, Ll rɨ^{3}gwɨ·n^{3}.

[7]The transitive (and ditransitive) verbs in some cases and in some languages exhibit a prominent feature of causation, but morphologically causative and transitive notions are but a single category.

It is quite likely that there were, in Proto Chinantec times, parallel devices for deriving an active verb from a stative verb root. Cf. the following forms: Oj ka^{13}li^{3}ma?^{3} ?ni^{2} *did you know?,* Pa li^{3}ŋyi^{32}za *he will find out,* ka^{3}li^{3}ŋyi^{32}za *he found out,* Ll li^{23}ñi^{32} *he will know,* ka^{23}la^{23}ñi^{32} *he came to know,* Qi ka li feh? *it became big.* This prefix is probably derived from the verb *lɨ^{LH} ~ *li *be, become* and creates an active intransitive verb stem, which may be preceded by aspect prefixes.

Cf. also the following forms, which mean *learn, cause to become acquainted* in all but the Qi form: Oj hma^{1}tɨ^{2} ?ni^{2}, U ma^{2}tąg^{23}, S ma tɨ, Tp hme^{2}tag^{32}, Pa mi^{2}tą^{32}, VN ka mi tɨ, Ll mi^{3}tin^{3}, Qi ụ ?laih *make well.* This prefix is probably derived from the verb *hme^{LH} *make, do* and creates an active transitive stem, which may be preceded by aspect prefixes and which, of course, may occur with an additional nominal argument.

It seems less certain that the activizing prefixes were a feature of Proto Chinantec than is the case with the stativizing prefix inasmuch as they both seem clearly derived from fully functional verbs, which seems not to be the case with the stativizer. Although their status is now well established and they are widely distributed, it is possible that the activizing prefixes are the result of independent morphologizing of complex verbal constructions of Proto Chinantec.

4.4. Person and number. The person-number categories are the one system common to both nominal and verbal inflection. Three persons are clearly distinguished by changes of tone on all obligatorily possessed nouns in the various Chinantec languages. In Oj, U, and Pa the tone of the first-person plural noun form seems always to be the same as that of the third-person form. In Ll the tone of the first-person plural form seems to be the same as that of the second- or third-person but not the first-person singular nor a new tone. It is only in Qi that the tone of the first-person plural is distinct. The second- and third-persons plural always follow the tones of the second- and third-persons singular. The distribution of different tones in nouns is indicated in (15).

(15)	Oj	U	Pa	Ll	Qi
first sg.	A	A	A	A	A
second	B	B	B	B	B
third	C	C	C	C	C
first pl.	C	C	C	B or C	D

In Oj, U, and Pa tones B and C are alike with some nouns and with others all three are alike. In Qi with a few nouns the tone of the second-person

plural does not seem to be derivable from that of the second-person singular. Apart from Qi nouns the first, second, and third persons seem to be the only tones that need to be distinguished for nouns. The status of the tone of the first-person plural is not a crucial question, however, because it is clearly one of those persons that must be distinguished in verbs.

An examination of the verbal paradigm of the several Chinantec languages shows that first-person singular, first-person plural, second-person, and third-person are distinguished in terms of vowel and tone changes. Other persons such as second- and third-persons plural and exclusive and inclusive distinction in first-person plural are at times distinguished by person markers but not by internal marking of tone and vowel changes.

From the internal marking of the vowel and tone alternations we turn to the external person marking system. Every Chinantec language about which relevent data are available marks at least one person by an external person marker.

Ojitlán marks second-person singular by stem-final -ʔ, as does every language except Ll and Le. Third-person is marked by -a^{2} or the full form ca^{2}. First- and second-persons singular and plural forms are regularly followed by the full personal pronoun. Cf. ñi^{23} hna^{3} *my face,* ñiʔ^{1} ʔni^{2} *your face,* ñi^{1}a^{2} or ñi^{1} ca^{2} *his face.*

In Usila first-person singular may be marked by suffixing tone 4 and first-person plural inclusive by tone 1. Second-person singular is marked by both tone 3 and -ʔ. Alternatively, the first- and second-persons singular and plural forms may be marked by a postposed free personal pronoun.

In Tlacoatzintepec second-person singular is marked by -ʔ. First-person singular (and sometimes second-person singular) is marked by nasalization of the stem vowel.

In Sochiapan the second-person is marked by -ʔ and the third-person by -s. Otherwise, marking is accomplished by postposed free pronouns.

Free pronouns are also common in Pa in addition to the -ʔ marker of second-person. Otherwise, the three singular persons are suffixed by simpler, posttonic forms of the personal pronouns: -hni, -ʔniw, -za.

Beyond Palantla the use of the free personal pronoun is not nearly as common. Naturally, there are markers which distinguish the various persons.

Actually in Ll-Co there are two sets of person markers, one which follows stems ending in *-ŋ (normally those marked for animate gender) and one which follows other stems. The external person markers of the Chinantec languages are summarized in (16) and (17).

(16) **Person markers with plain stems**

	1st sg.	2nd sg.	3rd	1st incl.	1st excl.	2nd pl.
Oj	Pro	-ʔ + Pro	-a^{2}/Pro	Pro	same Pro	Pro
U	-4/Pro	-ʔ + 3/Pro		-1/Pro	Pro	Pro
Tl	Y	-ʔ				
S		-ʔ	-s			
Pa	-hni/Pro	-ʔ + -ʔniw/Pro	-za/Pro	Pro	Pro	Pro
Ll	-n	-n		-ra^{2}	-raʔ^{31}	-raʔ^{3}
Le	-y	-y		-a^{2}	-aʔ^{1}	-aʔ^{3}
Qi	-h	-.ʔh		-hʔ	-.ʔh	-h.ʔ
Co	-(v)·	-ʔ	-r			

(17) **Person markers with *ŋ stems**

	1st sg.	2nd sg.	3rd	1st incl.	1st excl.	2nd pl.
U			-i^{3}/Noun			
Ll	-na^{23}	-nu^{3}		-na^{2}	-naʔ^{31}	-naʔ^{3}
Le	-a^{4}	-u^{3}	-y	-a^{2}	-aʔ^{1}	-aʔ^{3}
Qi	-na^{2}	-u(ʔh)^{3}	-i^{2}	-nahʔ^{31}	-naʔh^{13}	-nahʔ^{23}
Co	-n	-nʔ	-i	-naʔ	-naʔ	-náʔ

Clearly *-ʔ seems to have been the Proto Chinantec marker of second-person singular. First-person singular seems to have been marked by a nasal. Lalana and Co indicate that it was *-n. The marker of third-person was probably *z(a), as suggested by Oj, S, Pa, and Co.

Assuming that Ll-Co maintains the state of affairs of Proto Chinantec in distinguishing two sets of person markers, the *-n, *-ʔ, *-z(a) set occurred following plain stems and a different set—*-na, *-(ʔ)nu, *-i~Ø (before a noun)—occurred following *ŋ stems. All of these suffixes appear to be simplified forms of the following proforms: *hniá^{H} or ^{L} *I*, *ʔn(i)(u)^{L} *you (sg.)*, *za(·)^{L} *person*, *ʔí^{L} *that (one)*.

The situation of the plural persons is less clear. Apparently, both persons used a suffix similar to *-naʔ after *ŋ stems. After plain stems, suffixes similar to *-raʔ seem to have occurred.

4.5. Tense and aspect. Just as the person-number system of Proto Chinantec distinguishes four primary persons marked internally from the fuller, secondary set of person-number distinctions marked externally, so Proto Chinantec distinguishes a set of three primary tenses marked internally from a fuller set of aspects marked externally. The tenses are

present/progressive, future/intentive, and past/completive. All three are distinguished by differences of tone and vowel. One or both of the first two tenses in most languages is also marked by a tense prefix, but the form of the prefixes is so varied that it is uncertain that any of these can be traced to the Proto Chinantec period. The past tense, however, is consistently marked by the prefix *ka-.

At least Pa, Ll, and Qi have forms with prefixes that mark motion associated with the action. These prefixes occur with forms with the palatal alternant in alternating verbs. They may also occur with distinctive tones and constitute a separate tense, but at this point data are not sufficient to make such a determination regarding the parent language.

Each Chinantec language has a number of aspect prefixes that occur with specific tense forms of the verb stem. It is quite likely that Proto Chinantec had a number of such aspect prefixes which were only indirectly tied to the tense system, but at this stage of knowledge it is difficult to say which categories were a part of that system or what might have been the markers of those categories.

The proposals concerning the verb morphology of Proto Chinantec are summarized in (18) and (19).

(18) **Transitive inanimate verb with L vowel-alternation pattern**[8]

	first sg.	**first pl.**	**second**	**third**
present	CVn^{1a}	CiV^{2a}ra?	CV?^{3a}	CV^{4a}za
future	CVn^{1b}	CiV^{2b}ra?	CV?^{3b}	CV^{4b}za
past	ka-CVn^{1c}	ka-CiV^{2c}ra?	ka-CiV?^{3c}	ka-CV^{4c}za

(19) **Ditransitive animate verb of the same stem**

	first sg.	**first pl.**	**second**	**third**
present	CVŋ?^{5a}na	CiVŋ?^{6a}na?	CVŋ?^{7a}nu	CViŋ?^{8a}
future	CVŋ?^{5b}na	CiVŋ?^{6b}na?	CVŋ?^{7b}nu	CViŋ?^{8b}
past	ka-CVŋ?^{5c}na	ka-CiVŋ?^{6c}na?	ka-CiVŋ?^{7c}nu	ka-CViŋ?^{8c}

[8]In these paradigms la, lb, lc, etc. refer to different but related tone patterns. They may be a single tone or a combination of tones.

Dictionary

[blank]

Explanatory Notes

The following conventions are observed in the entries of the etymological dictionary:

1. Initial consonants are arranged in the following order: *p t k k^w ʔ b z g g^w s h m n ŋ w l y r; ʔg ʔm ʔn ʔŋ ʔw ʔl ʔy hg hm hn hŋ hw hl hy.

2. Syllable nuclei and final elements are arranged in the following order: CV CVŋ CV́ CV́ŋ CV... CV·... CV̨.

3. Forms exhibiting alternation within a verb paradigm (cf. section 4, especially 4.1, of the Introduction) are joined by the sign ~. These forms are not simply alternate reconstructions but are reconstructed alternations based on paradigmatic alternations in daughter languages. For example, see set no. 27, in which alternating vocalic elements are shown in the U, Tl, Pa, Ll, Le, and Co forms. Contrast this with the following set, no. 28, in which alternate reconstructions must be posited since no single reconstruction satisfies the divergent forms of the daughter languages.

In most cases the alternating elements are vowels. Less commonly, the alternating elements are tones, usually marking tense differences. In a small class of verbs a stem with a final glottal stop alternates with one without glottal stop.

4. Vocalic nasalization, although automatic after a nasal consonant, is not marked in that environment.

5. After labial consonants the Lalana reflexes of *e are usually ä. However, they are written in the entries simply as a since no contrast occurs in that environment.

6. Tone has been reconstructed on the basis of tonal data from five dialect areas: Oj-U, Tl-S, Tp-Pa, Ll-Le, and Qi-Co. A tone reconstruction is provided for a given set if:

(a) two or three languages with tonal data unanimously reflect the same reconstruction,

(b) three out of four languages with tonal data reflect a given reconstruction, or

(c) more than four languages have tonal data and the cognates reflect a given reconstruction with conflicting evidence coming from no more than two dialect areas.

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An Etymological Dictionary of the Chinantec Languages

*p

1 ***pí·ʔ^{H}** *small* **Oj** piʔ^{1} miʔ^{2} **U** peiʔ^{1} (tone 2 expected) **Tl** peʔ **Ch** ca pi (reflects a short vowel; ʔ expected) **M** peiʔ **S** piʔ **Qe** peiʔ **Z** piʔ **Tp** píʔ^{1} **Pa** píʔ^{1} **VN** ko peiʔ *a little bit* **Oz** či piʔ *child* **Ll** pi·ʔ^{2} *(inan.)* (the first **Ll** and **Le** forms reflect an unaccented syllable) piʔn^{2} *(an.)* **Le** piʔ^{2} *(inan.)* píʔ^{1} *(an.)* **Qi** pihʔ^{1} **Co** píʔ^{1} *(inan.)* piʔ^{1} *(an.)* (accent expected).

2 ***pé·ʔ^{L}** *bubble* **U** ṷ^{4}paʔ^{4} **Tp** pə́ʔ^{2} **Pa** pə́ʔ^{2} *full and firm* **Ll** mɨ^{31}peʔ^{3} *button* **Lt** mɨ peʔ. The following forms probably also belong to this set: **Ll** peʔ^{3} *fist* **Lt** peʔ *fist.*

3 ***pe·ʔ^{LH}** [1] *light (inan.)* ***pé·ʔŋ^{LH}** [2] *light (an.)* **U** pạʔ^{4} [2] **Ll** pa·ʔ^{3} [1] peʔn^{3} [2].

4 ***pa** [1] *big, fat (inan.)* ***paŋ** [2] *big, fat (an.)* **U** pa^{1} [1] **Tl** meg^{3}θẹ́g^{3} pa^{2} *bubble* [1] pạ́^{2} [2] **M** ra pa [1] **S** pa [1] **Qe** pạ [2] **Tp** pạ^{31} [2] **Pa** pa^{1} *big in circumference* [1] **VN** pa hmaɨ *boil* **Qi** po^{242} *round* [1].

*t

5 ***tɨ^{L}** *short* **Oj** tɨ^{1} (tone 2 expected) **U** a^{3}teg^{3} (animate) **Tl** teg^{3} **S** tɨ^{2} **Tp** tə^{2} **Pa** tɨ^{2} **Ll** tɨh^{3} (h unexplained) **Le** tɨ **Qi** tɨ^{34} **Co** tɨ^{12}.

6 ***tɨ^{LH}** *master, accomplished person* **Oj** co^{4} tɨ^{2} *school teacher* tɨ^{2} ʔma^{2} *carpenter* **U** teg^{3} ṷ^{43} *doctor* a^{2}teg^{23} *school teacher* (tone 3 is **U** reflex of *^{LH}) **Tl** tég^{2} *teacher* (CV́^{4} expected) **S** tɨ^{32} *school teacher* **Tp** tə^{32} *master* **Pa** tɨw^{32} *school teacher* tɨw^{32} mɨw^{32} *doctor* **Ll** tɨ^{32} *mason* (tone 3 expected) **Qi** tɨ^{4} *musician* tɨ^{4} fohʔ^{3} *school teacher* **Co** tɨ^{2} *master.* The following forms apparently belong to the same set: *tɨŋ^{LH}

learn **Oj** hma^{1}tɨ^{2} ʔni^{2} *learn!* **U** ma^{3}tɑ̨g^{23} (tone 3 expected) a^{3}tɑ̨g^{3} *learned person* **Tl** tɑ̨g^{3} *become accustomed* (CV́^{4} expected) tɛ̨g^{3} *learned person* **S** ma tɨ̨ co **Tp** tɨ̨^{2} za^{2} (32 expected) hme^{2}tag^{32} za^{2} *teach* **Pa** mi^{2}tɑ̨^{32} za^{2} **VN** la mi tɨ hna **Ll** tɨn^{3} **Le** tɨ̨ (ɨ expected) **Qi** tɨh^{2} (ɨɨ and tone 4 expected) **Co** tɨ·iŋ^{2}. The second forms of **Tl** and **Tp** and the **Qi** and **Co** forms reflect a long vowel.

7 ***tɨ́L** [1]~^{HL} [2] *reach (inan. subj.)* ***tɨŋ**^{HL} [3] *reach (an. subj.)* **Oj** tɨ^{2} [1] tɨ^{4} *until* [2] **U** teg^{34} [2] **Tl** tég^{3} [1] **S** ka^{3}tɨ^{21} [1?] (23 expected) **Tp** tə^{31} [1 or 2] (tone doesn't match) **Pa** tɨ́^{2} *(past)* [1] tɨ^{3} *(future)* [2] tɑ̨^{1} [3] (tone 2 expected) **Ll** ka^{23}tɨh^{3} *(past)* [1] rɨ^{23}tɨh^{23} *(future)* [2] tɨhn^{23} [3] (reflects ballistic syllable) **Le** ga^{4}tɨ^{34} [1] (tone 3 with ballistic accent expected) **Qi** tɨih^{4} *it fits, has correct measurement* [3] (h not expected) **Co** sɨ^{2}tɨ́ŋ^{21} *gather* [3] (12 expected).

8 ***tɨ**^{LH} (zɨ́) *it is pleasing (to one's heart)* **U** teg^{3} cei^{43} **Tl** tég^{4} **Qe** hnaʔ tɨ ca **Tp** tə^{32} zɨ́^{32} **Pa** tɨw^{32} zɨ́^{32} **Qi** tɨh^{4} ci^{1} (h unexpected) **Tm** tɨ zi **Co** tɨ^{2} dí·r^{21}.

9 ***tɨ**^{H} *foot, lower leg* **Oj** tɨ^{31}a^{2} **U** si^{1}tag^{32} **Tl** tag^{4} **M** tɨ ce **S** ta^{3}co^{2} **Tp** mɨ^{2}tag^{21} za^{2} **Pa** tay^{1} **VN** taɨ za **Oz** ma tɨ hni *my foot* **Ll** tɨ·^{2} **Le** tɨ **Qi** tɨh^{2} **Co** tɨ·^{1}.

10 ***tɨ́**^{L} *machete* **U** a^{2}ñi^{23} tag^{4} **Tl** ŋwí^{1} mí^{1} tág^{3} **S** mi taɨ **Qe** mi ta (aɨ expected) **Tp** ŋí^{1} tág^{2} **Pa** ŋyi^{1} tay^{3} (tone 2 expected).

11 ***tɨ́ŋ**^{L} [1] or ^{LH} [2] ***tɨ́·ŋ**^{L} [3] *fight* **U** si^{3}tɑ̨g^{4} [1] **Tl** tɛ̨́y^{3} [3] **Ch** ma i tɨ co [3] **S** na^{1}tɨ^{23}co^{2} [1 or 2] **Qe** la tɑ̨ [1 or 2] **Tp** kɨʔ^{2} tɨ^{32} za^{2} [2] **Pa** tɑ́^{32} za^{2} [2] té^{2} [3] (may reflect short vowel) **Oz** ʔɨ tɨ [3] **Ll** ʔa^{23}-tɨ·n^{31} *ill-willed* [3] (CV·h^{2} expected) **Le** da·ʔ^{2} tɨ̨n^{3} za^{3} [3] (oral vowel expected but no accent) **Qi** tɨih^{42} [1 or 2] (3 or 24 expected; h not expected).

12 ***tə** [1]~***te** [2] *call (intr.)* ***tə·ʔ** [3]~***te·ʔ** [4] *call (tr.)* **Oj** a^{4} tə^{3} ʔni^{2} *do not call!* [1] te^{2} ʔni^{2} *call!* [2] **U** te^{23} [1 or 2] **Tl** té^{3} [2] téʔ^{2} *(tr. with only third person object)* [3 or 4] **Ch** ka tya co [2] (tɨe expected) **S** li tyë co *a person called me* [2] (tɨe expected) **Qe** te co [2] **Tp** tə́^{2} za^{2} [1 or 2] tə́ʔ^{2} [3 or 4] **Pa** tɨ́w^{2} [1] tɨ́^{2} za^{2} [1] (reflects long vowel) tɨ́ʔ^{2} za^{2} [3] teʔ^{32} hnyeʔ^{1} *we call* [4] **Ll** tə^{32} [1] te^{2} *call!* [2] tə·^{3} [3] te·^{2} [4] (In this verb and several others which have a stem marked for two or more participants by an added ʔ **Ll** marks the same category by added length. Cf. sec. 4.3 of the Introduction.) **Le** te^{32} [1] mɨ da tye [2] **Qi** teh *call!* [2] (h not expected) təʔh^{2} [3] **Co** tə́^{2} [1] té^{2} *(second person past)* [2] tə́·ʔr^{12} [3].

13 ***tə·ʔŋ**^{LH} [1]~***te·ʔŋ** [2] *advise* **Pa** towʔ^{32} [1] tyowʔ^{2} *you (sg.) advised* [2] **Ll** to^ʔn^{3} [1] **Le** ga^{3}tá·yʔ^{3} [1] ga^{4}tya·ʔ^{42}a^{2} *we advised* [2].

14 *tiŋ *reach (tr.)* **Ll** tin^{23} **Le** tḭ^{4} (iy expected).

15 *ti·L [1] *thin (inan.)* *tɨ·ŋL [2] *thin (an.)* **Oj** ti^{2} [1] **U** tai^{3} [1] **Tl** tay^{3} [1] **Ch** tey [1] **M** tei [1] **S** tei^{2} [1] **Qe** tai [1] **Tp** tei^{2} [1] **Pa** ti^{2} [1] te^{2} [2] **VN** tei [1] **Oz** ti [1] **Ll** ti·^{3} [1] **Le** ti·^{3} [1] ti·y^{4} [2] (tone 3 expected) **Qi** tih^{23} [1] tḭh^{23} [2] **Co** ti·ŋ^{2} [2].

16 *ti· *cat* **Oj** či^{2}ti^{2} **U** a^{1}tei^{1} (reflects a short vowel) **Tl** tay^{1} **Ch** ci tey **S** mi^{1}tei^{32} **Qe** mi tai **Qi** ʔyia?^{4} ti^{2} *jaguar* (reflects a short vowel) **Co** ʔyé·ʔ^{12} ti·^{1}.

17 *ti· [1] *ti·ʔ [2] *scratch, peel* **U** tai^{3} [1] **Tl** táy^{4} [1] táyʔ^{2} [2] **Tp** téiʔ^{32} za^{2} [2] **Pa** tey^{32} [1] **Ll** ti·^{23} [1] **Le** ti·^{4} [1] **Qi** tih^{4} [1] **Co** tí·r^{12} [1].

18 *ti·ŋ *set fire to* **Pa** te^{32} **Co** tí·ŋ^{21}.

19 *tí·HL *rain* **Ch** hmɨ tey **Tp** hmí^{32} téi^{3} (ballistic accent unexpected) **Pa** hmɨw ti **Qi** hmɨ^{3} ti^{34} *drizzle* (reflects a short vowel).

20 *téʔLH *castrated* **U** teʔ^{43} **Ch** teʔ (ty expected) **S** ka tyeʔ *capon* **Qe** teʔ **Tp** téʔ^{3} (32 expected) **Pa** teʔ^{32} **Ll** teʔ **Lt** tyeʔ **Co** teʔ^{2}.

21 *tuH *navel* **Oj** či^{1}tu^{1}a^{2} **U** ṵ^{4}ta^{3}teu^{1} (tone 2 expected) **Tl** tyu^{42} (42 occurs in **Tl** obligatorily possessed nouns rather than the more common tone 2; presence of y in this set, *tuH *lima,* and *tu·ʔLH *bag* is puzzling) **Ch** ci tu **M** ci tu **S** ci tu co **Tp** si^{1}tu^{1} za^{2} **Pa** míy^{3} tu^{1} za^{2} **VN** mɨ tu za **Oz** mɨ tu **Ll** mɨ^{2}tu^{2} **Le** mɨ^{1}tu^{2} **Qi** mɨʔ^{1} tu^{2} **Co** mɨ tu·^{1} (length not expected). This set may be related to the one immediately following.

22 *tuH *lima, a type of citrus fruit* **U** ṵ^{4}ṵ^{3}teu^{1} **Tl** mág^{3} nya^{3}tyu^{2} **Qe** hḭʔ teu (u expected) **Tp** mɨ^{2}tu^{1} **Pa** ʔwɨʔ^{32} tu^{1} **Qi** hḭh?^{4} tu^{2}. This set may be a part of *tuH *navel*

23 *tuL *turkey* **Oj** tu^{2} **U** a^{1}teu^{3} **Tl** tu^{3} **S** tu^{2} **Tp** tu^{2} **Pa** tu^{2} **VN** tu **Oz** tu **Ll** tu^{3} **Le** tu^{3} **Qi** tu^{34} *hen, poultry* **Y** tu *fowl* **Co** tu^{12}.

24 *túʔLH *knife* **Oj** ñi^{1} tuʔ^{4} **U** a^{2}ñi^{23} tauʔ^{5} (43 expected) **Tl** mí^{1} táwʔ^{1} (4 expected) **Ch** nyi tawʔ **Qe** mi teʔ (may be a misrecording of teuʔ, the expected form) **Tp** nɨ^{1}ŋí^{1} tə́ʔ^{32} (u expected) **Pa** ŋyí^{1} təʔ^{32} **VN** ŋyi tauʔ **Oz** ñi tuʔ **Ll** tuʔ^{2} **Le** tuʔ *machete.*

25 *túʔLH *stomach* **Oj** tuʔ^{1}a^{2} (4 expected) **U** o^{1}tauʔ^{32} (43 expected) *intestine* **S** tëʔs *interior stomach* **Qe** teuʔs *spleen* **Tp** rə^{2}túʔ^{32} za^{2} **Pa** towʔ^{32} **VN** tauʔ za **Oz** tuʔ **Ll** tuʔ^{2} **Le** tuʔ a **Qi** tuʔ^{3} **Co** tuʔ^{2}.

26 *tu·L *tube* **Ll** tu·^{3} *blow gun* **Qi** tuh^{23} **Co** tú·^{21} (2 without accent expected).

27 *tu·LH [1]~*tiu·H [2] *defecate* **Oj** ma^{2}tu^{2}hlɨ^{2} tɨ^{2}ʔna?^{1} *the hen laid eggs* [1] **U** tau^{3} [1] ni^{2}tai^{34} *I'm going to defecate* [2] **Tl** taw^{34} [1] tayʔ^{4} *you defecated* [2] **S** kwa^{1}taɨ^{2} *she is*

laying eggs [1] (32 expected) **Qe** teu [1] **Tp** tag^{32} za^{2} [1] **Pa** taw^{32} za^{2} [1] tew^{1} hnye?^{1} *we defecate* [2] **Ll** tu·^{3} [1] tö·^{3}ra^{2} *we defecate* [2] (tone 2 expected) **Le** ga^{3}tu·^{3} [1] ga^{4}tyu·^{2}a^{2} *we defecated* [2] **Qi** tuh^{4} [1] **Co** tú·r^{12} [1] (tone 2 without accent expected) tö· *we defecate* [2].

28 ***tu·H** [1] ***tiu·H** [2] *blind (inan.)* ***tu·ŋH** [3] ***tiu·ŋH** [4] *blind (an.)* **Oj** tǫ^{31} [3] **U** a^{3}tąu^{32} [3] **Tl** ca^{3} taw^{4} [1] **Ch** tu̧ [3] **S** ca tę̈ [3] **Qe** ca tęu̧ [3] **Tp** tę^{21} [4] **Pa** tew^{1} [2] tyuw^{1} [4] **VN** za tyu̧ŋ [4] **Ll** tu·^{2} *(attributive position)* [1] tu·n^{2} *(predicate position)* [3] **Lt** tu·y [3] **Le** tu· [1] tu·y^{23} *(predicate position)* [3] (tone 2 expected) **Qi** tüh^{3} [2] (tone 2 expected) tu̧ih^{242} [3] or perhaps [4] (tone 2 but an oral vowel expected) **Co** tiu̧·ŋ^{1} [4].

29 ***tu·ʔL** *buzzard* **Oj** si̧^{1}tuʔ^{2} **U** a^{1}teu^{3} hue^{5} **Tl** tu^{3}hwé^{2} **M** tuʔ hwi̧ **S** tu^{2}hwe^{32} **Tp** i^{1}tə^{2}ci̧ʔ^{31} (u expected) **Pa** tu^{2}ci̧ʔ^{1} **VN** tu sąi̧ʔ **Oz** tu si̧ʔ (nasalization expected) **Ll** tu·ʔ^{3} si̧·ʔ^{3} or tu^{3}si̧·ʔ^{3} **Le** tu·ʔ **Qi** tuhʔ^{4} (23 expected) **Co** tu·ʔ si̧·ʔ^{21}. The pretonic forms of **U, Tl, S, Pa, VN, Oz,** and the second **Ll** term are identical to those of *tuL *turkey.* The following set may be related to this one; some forms are identical and the tone of the **Qi** form in this set fits the correspondence of the following set.

30 ***tu·ʔLH** *bag* **Oj** si̧^{1}tuʔ^{2} **U** a^{2}to^{3} lo^{3} *pocket* a^{2}to^{3} ʔu̧ʔ^{3} *cloth bag* (teuʔ expected) **Tl** tyuʔ^{4} (y unexpected; cf. *tuH *navel)* **Ch** tu lo (reflects *tu) **S** tuʔ^{32} (ë expected) **Qe** teuʔ **Tp** ci̧^{1}tə^{2}ʔmi̧ʔ^{2} (i̧ would have been expected if form had been closed by ʔ) **Pa** tuʔ^{32} **Ll** tu·ʔ^{3} **Le** mi̧ʔ^{3} tuʔ^{3} (long vowel expected) **Qi** tuhʔ^{4} **Co** ʔmi̧^{1}tuʔ^{1} *burlap bag* (long vowel expected). The forms of **U, Ch,** and **Tp** show evidence of leveling in pretonic position. This set may be related to the one immediately preceding, the one immediately following, or both.

31 ***tu·ʔLH** *clay pot* **U** a^{2}teuʔ^{3} **Tp** ni̧^{1}ti̧ʔ^{2} **Pa** təʔ^{32} **Co** tuʔ^{2}. These forms and those of the preceding set may belong to a single set with a gloss such as *container.*

32 ***taH** *work* **Oj** ta^{1} **U** ta^{1} (2 expected) **Tl** ta^{2} **S** ta^{21} (1 expected) **Tp** ta^{1} **Pa** ta^{1} **VN** ta **Oz** ta **Ll** ta^{2} **Lc** ta **A** ta **Le** ta^{2} **Qi** hma to^{2} *do work* **Y** ta **Co** ta^{1}.

33 ***taL** *reed* **Oj** ma^{2} ta^{2} **U** a^{2}ʔma^{3} ta^{3} **S** ʔma ta **Tp** ni̧^{1}ʔma^{2} ta^{32} (2 expected) **Pa** ʔma^{2} ta^{2} **Oz** ma ta **Ll** ʔmo^{3} ta^{3} **Lc** ʔmo to **Pe** ʔmo to **A** ʔmo to **Le** mi̧y^{3} ta^{3} **Qi** to^{34} **Co** ta^{12}.

34 ***taLH** *ladder* **Oj** ʔma^{2} ta^{2} **U** a^{2}ʔma^{3} ta^{3} **Tl** tá^{4} **S** ta^{32} **Tp** ni̧^{1}ta^{32} **Pa** ta^{32} **VN** ta **Oz** ʔma ta **Ll** ta^{3} **Lc** to **Pe** to **A** to **Le** ta^{3} **Qi** ʔmo^{3} to^{2} (4 expected) **Co** ʔma^{12} ta^{12} (2 expected).

35 ***ta** *scrape* **Tl** tá^{2} *weave* **S** kyu^{1}-ta^{32} **Pa** ta^{32} *scrape, weave* **Ll** ta^{23} **Le** ta^{4} **Co** ta *remove bark.*

36 ***táH** *a kind of basket* **U** a^{2}ṷʔ^{3} ta^{23} **S** mɨʔ^{2} ta^{2} *reed basket* (probably belongs to the *taL *reed* set) **Tp** ci^{1}mɨʔ^{2} tá^{1} *large basket* **Pa** mɨʔ^{2} ta^{1} (probably belongs to the *taH *work* set) **Co** mo^{2} tá^{2} (1 expected).

37 ***táʔLH** *bee* **Oj** toʔ^{4} **U** a^{1}ma^{2}-toʔ^{43} *wasp* **Tl** toʔ^{4} (accent expected) **S** muʔ^{2} toʔ^{2} (23 expected) **Tp** i^{1}si^{2}táʔ^{32} **Pa** taʔ^{32} (vowel o expected) **VN** toaʔ **Ll** toʔ^{2} **Le** táʔ^{2} **Qi** toʔ^{3} *honey bee* **Co** taʔ^{2}.

38 ***táʔLH** *a kind of fruit, perhaps zapote* **U** ṷ^{4}toʔ^{43}ʔma^{3} *black zapote* **Tl** tóʔ^{4} *zapote* **S** hịʔ toʔ *sour orange* **Tp** mɨ^{2}táʔ^{32} *zapote* **Ll** mɨ^{31}-toʔ^{1} *orange* (form in isolation is toʔ^{2}) **Le** taʔ^{2} *orange* (accent expected) **Co** taʔ^{2}.

39 ***táʔ** [1] ***tá·** [2] *brains* **Oj** toʔ^{1} či^{1}a^{2} [1] **U** o^{1}toʔ^{2} [1] **Tl** tóʔ^{1} ci^{42}-ceg^{3} [1] **S** tóʔ^{3} [1] **Tp** ti^{1}toʔ^{2} [1] (a expected) **Pa** tóʔ^{2} tyoʔ^{31} zi^{1} za^{2} [1] **Ll** to·h^{2} [2] **Le** tá·^{2} [2] **Qi** toh^{3} [2] **Co** tó·^{1} [2].

40 ***táʔ** [1]~***tiaʔ** [2] *put in (inan. obj.)* ***tiaʔŋ** [3] *put in (an. obj.)* ***tia·ʔH** [4] *be in (stative inan.)* ***tiáʔŋ** [5] *be in (stative an.)* **Oj** a^{4} toʔ^{3} ʔni^{2} *don't put it in!* [1] teʔ^{2} ʔni^{2} *put it in!* [2] **U** toʔ^{3} *prick, stick with needle or thorn* [1] tieʔ^{32} *it contains* [4] (vowel quality but not tone of the **U** and **Tp** forms reflects a short vowel) **Tl** tóʔ^{4} [1] **Ch** tyoʔ [4] (vowel quality of the **Ch** and **S** forms reflects a short vowel) **S** tyoʔ [4] **Tp** tioʔ^{31} [4] tiọʔ^{31} [5] **Pa** tóʔ^{32} za^{2} [1] tyoʔ^{32} hnyeʔ^{1} *we put in* [2] tyówʔ^{32} [3] tyoʔ^{31} [4] (vowel quality reflects a short vowel; l expected) tyóʔ^{32} [5] **Ll** mɨ^{3}toʔ^{2} [1] tä·ʔ^{32}ra^{2} [2] (reflects a long vowel) taʔn^{32} [3] tä·ʔ^{2} [4] taʔn^{2} [5] **Le** ta·^{24} [1] (reflects a long vowel) **Qi** toʔh^{34} or ^{24} [1] **Co** te·ʔ^{21} [4]. This set may be related to *tạʔ *put in.*

41 ***ta·H** *seed of the mamey* **U** ṷ^{4}to^{32} **Tl** to^{12} (4 expected) **S** mɨ to **Tp** mɨ^{2}to^{21} **Pa** taw^{1} **Oz** mɨ to **Ll** mɨ^{2}to·^{2} **Qi** mɨʔ^{2}toh^{2} **Co** mɨ^{2}to·^{12} (1 expected).

42 ***ta·H** *posole leaf* **Oj** mo^{31} to^{2} *tender banana leaf* (31 expected) **U** ma^{2}to^{32} **Tl** mew^{3}to^{4} **Tp** hme^{1}tióg^{21} (reflects *ia·) **Pa** muw^{2} taw^{1} **Ll** me·^{3} to·^{2} **Le** me·^{3} ta·^{2}.

43 ***ta·L** *banana* **Oj** to^{2} **U** o^{1}to^{3} **Tl** tew^{3} **Ch** to **M** hu to **S** tó^{2} **Tp** nɨ^{1}tau^{2} **Pa** təw^{2} **VN** tao **Oz** na to **Ll** to·^{3} **Le** ta·^{3} **Qi** toh^{23} **Co** to·^{2}.

44 ***ta·L** *hole* **Oj** to^{2} ñiʔ^{4} *cave* **U** to^{3} **Tl** tew^{3} **Ch** to **M** to lo **S** tó^{2} **Tp** tau^{2} **Pa** təw^{2} **VN** tao **Oz** ta gwa ni *ear* (o > a in pretonic position) **Ll** to·^{3} **Le** ta·^{3} **Qi** toh^{23} *cave* **Co** to·^{2}.

45 ***ta·HL** *grindstone (metate)* **Oj** sya^{1}to^{2} **U** a^{2}si^{2}to^{23} **Tl** tó^{4} **S** to^{2} **Tp**

nɨ^{1}to^{2} **Pa** to^{2} (əw expected) **VN** toa **Oz** sɨ to **Ll** to·^{23} **Lc** ša to **Le** ta·^{4} **Qi** toh^{4} **Co** tó·^{12}.

46 ***ta·^{LH}** *roast* **U** to^{3} **Tl** to^{34} **Tp** to^{32} za^{2} **Pa** tə́w^{2} (32 expected) **Ll** to·^{3} **Le** ga^{3}ta·^{3} **Co** to·.

47 ***ta·** *soap* **Oj** ñi^{1} to^{2} **Tl** ci^{2}to^{12} or ci^{2} tó^{2} **S** ci to **Qe** si to.

48 ***ta·ʔ^{H}** *sand* **Tl** sɨ taʔ *river sand* **S** θɨ^{1} táʔ^{1} *river sand* (reflects accented syllable) **Qi** tohʔ^{42} **Co** to·ʔ^{21}.

49 ***ta·ʔ^{L}** *charcoal* **Oj** yi^{3} taʔ^{3} (2 expected) **U** o^{1}hd^{y}i^{3} taʔ^{3} **Tl** taʔ^{4} **S** sɨ^{2}taʔ^{2} **Tp** nɨ^{1}taʔ^{2} **VN** hi toaʔ **Oz** hi taʔ **Ll** hi^{3} to·ʔ^{3} **Le** ši^{3} ta·ʔ^{3} **Qi** tohʔ^{23} **Co** tó·ʔ^{12}.

50 ***ta·ʔ^{L}** *shrimp, bamboo* **Oj** taʔ^{2} **U** hǫ^{43}taʔ^{3} **Ch** taʔ **S** ʔma^{2}taʔ^{2} *bamboo* taʔ^{2} *shrimp* **Tp** i^{1}taʔ^{2} **Pa** taʔ^{2} **Ll** to·ʔ^{3} **Le** taʔ^{3} (long vowel expected) **Qi** tohʔ^{4} (23 expected) **Co** tó·ʔ^{12}.

51 ***tá·ʔ^{L}** [1] *(past)*~***tiá·ʔ^{L}** [2] *(future) fall (inan. subj.)* ***tá·ʔŋ^{L}** [3] *(past)*~***tiá·ʔŋ^{LH}**? [4] *(future) fall (an. subj.)* **Oj** ka^{3}taʔ^{3} [1] ka^{3}tąʔ^{3} [3] **U** taʔ^{4} [1] a^{4}tąʔ^{4} [3] tjąʔ^{5} [4] **Tl** ka^{34}táʔ^{2} [1] (3 expected) **Ch** ti tyaʔ [2] ka tąiʔ (transcription uncertain) [3] **S** ka^{3}taʔ^{3} [1] taʔ^{21} [2] (< *ta·ʔ; 3 expected) ka tąʔ [3] **Tp** taʔ^{2} [1] (accent expected) **Pa** táʔ^{2} [1] tyíʔ^{2} [2] tąʔ^{2} [3] tyąʔ^{3} [4] **VN** ka toaʔ [1] ka taʔ [3] **Ll** ka^{23}to^{3} [1] rɨ^{23}tä·ʔ^{3} [2] (reflects unaccented syllable) ka^{23}təʔn^{3} [3] rɨ^{23}teʔn^{23} [4] **Lc** rɨ təʔ (< *ta·ʔŋ) **Le** ma taʔ [1] **Qi** tohʔ^{1} [1] (34 expected) **Co** (ni)téʔ^{12} [2]. The following forms witness to a pair of related stems: *tia·ʔ^{HL} [5] *fell (inan. obj.)* *tá·ʔŋ^{HL} [6] *fell (an. obj.)* **Pa** tyiʔ^{32} [5] tąʔ^{32} [6] **Ll** tä·ʔ^{23} [5] təʔn^{23}na^{23} *(first sg.)* [6]. Other forms in the **Ll** paradigms, rɨ^{2}təʔn^{2} *you will cause it to fall* and teʔn^{32} *he causes him to fall,* suggest that the transitive forms also had the *CV~*CiV alternation found in the intransitive set and that the distinction between transitive and intransitive sets was one of tone.

52 ***tiu** *cut off* **Oj** e^{2} či^{1}ti^{2}a^{2} či^{1}a^{2} *he's cutting hair* **U** tei^{23} (reflects accented syllable) **Tl** tyú^{2} **Tp** ti^{32} za^{2} **Pa** tyu^{32} **Ll** tön^{32} (**Ll** and **Le** forms reflect syllable-final *ŋ) **Le** tyuy^{32} **Co** tör^{2}.

53 ***tiú^{L}** [1] *leave (inan. obj.)* ***tiúŋ^{L}** [2] *leave (an. obj.)* **Tp** tí^{2} za^{2} [1] **Pa** tyú^{2} [1] tyúw^{2} [2] **Ll** tö^{32} [1] tön^{32} [2] (3 with syllable-final h expected in both forms) **Le** ga^{3}tyú^{3} [1] ga^{3}tyúy^{3} [2] **Qi** tüh^{24} (h reflects a long vowel but the tone does not) **Co** tö [1] ka tiụiŋ^{1} [2] (12 and an accent expected).

54 ***tiú^{LH}** *gun* **Oj** ti^{3} **U** a^{2}tei^{43} **Tl** ŋwí^{1} tí^{3} **Ch** tyu **M** tyu **S** tyu^{23} **Qe** tyu **Tp** tí^{32} **Pa** tyú^{32} **VN** tyu **Oz** na tɨ **Ll** töh^{2} **To** tö **A** tö **Le** tyṷ^{2} (nasalization not expected) **Qi** tü^{3} **Y** tü **Co** tő^{21}.

55 ***tiu·** *pulp, shredded material* **Tp** tei^{31} *meat of fruit* **Pa** tyu^{31} **Ll** tö·^{2}.

56 ***tiu·ʔ**^{H} *milk, breast* **Oj** či^{1}tiʔ^{1}a^{2} *breast* **Tl** meg^{3}tiʔ^{1} *milk* tyúʔ^{2} *suck milk* **Ch** tyuʔ co *breast* **M** tyuʔ ci *breast* **S** mɨ^{2}tyuʔ^{21} *milk* (32 expected) **Qe** mɨ teiʔ *milk* **Tp** ziʔ^{31} *milk* (t is expected in **Tp** and **Pa**) **Pa** zyúʔ^{1} *breast* (accent not expected) **Ll** mɨ^{2}tö·ʔ^{2} *breast* **Le** hmi tyu·ʔ *milk* **Qi** tüh^{34} *breast* (the **Qi** and **Co** forms reflect ^{L} with an accent) **Co** tőʔ^{12} *breast.*

57 ***tia** *father (address form)* **U** tia^{23} **Tl** tya **S** ta (tya expected) **Qe** tya **Tp** tia^{31} **Pa** tyá^{1} (tyi expected) **Oz** ta **Ll** ta^{31}hmi·^{3} **Le** dya^{2} (voicing of stop not expected) **Co** tia^{12}. **U, Pa,** and perhaps **Tp** reflect ^{H} and an accent; **Le** also reflects ^{H}.

58 ***tia** *early* **U** to^{5}ʔie^{3} **Tl** téy^{4} **Qe** to nei **Tp** tę^{32} *early* tə^{2} ʔo^{3}ʔiog^{2} *early in the morning* **Ll** täh^{3} **Le** ruʔ^{4}tya^{34} **Qi** ka^{3}ta^{3} *a little while.* The vowel reflexes in **U, Tl, Qe,** and **Tp** are very difficult; perhaps in some cases at least this is due to their pretonic position.

59 ***tia** *dip tortilla in food* **Pa** tyí^{2} **Ll** tä^{32} **Co** tiá^{2}.

60 ***tia·**^{L} [1] *white (inan.)* ***tia·ŋ**^{L} [2] *white (an.)* **Oj** te^{2} [1] tą^{2} [2] **U** tie^{3} [1] tịọ^{43} [2] (tone 3 expected) **Tl** tyu^{3} [1] tọ [2] **Ch** tyu [1] **M** ti [1] **S** tyó^{2} [1] (accent not expected) tyọ [2] **Qe** tyu [1] **Tp** tiog^{2} [1] **Pa** tew^{2} [1] tyuw^{2} [2] **VN** tyoŋ [2] **Oz** tö [1] **Ll** tä·^{3} [1] tä·^{2} [2] (te·n^{3} expected) **Le** tya·^{3} [1] tyé·y^{4} [2] (tone 3 without accent expected) **Ql** tah^{23} [1] taih^{23} [2] **Co** te·^{2} [1] tia·ŋ^{2} [2] (e·ŋ expected).

61 ***tia·** [1]~***tia·ŋ** [2]~***tia·ʔŋ** [3] *endure* **Oj** teʔ^{3}a^{2} [1] e^{2} sa^{3} te^{3} hna^{3} *I can't endure* [1] tąʔ^{1} ʔni^{2} *endure!* [3] **U** sa^{4} tie^{32} hnia^{4} *I can't endure* [1] o^{4} tịąʔ^{32} ʔnei^{3} *can you endure?* [3] **Tl** tóʔ^{4} [3] (yo expected) **Ch** tyọ [2] **S** tya tyoʔ co *he doesn't endure* [1] **Qe** tyuʔ [1] **Tp** tioʔ^{31} za^{2} or tióʔ^{32} za^{2} [1] **Pa** tyúʔ^{3} za^{2} [1] tyaw^{3} hní^{2} *I endure* [1] tyą^{32} *(tr. an. obj.)* [2] tyąʔ^{31}ʔni^{2} *you endure* [3] **VN** tye [1] **Ll** tä·^{23} [1] rɨ^{23}te·hn^{2}nu^{3} *you'll endure* [2] **Le** ʔa^{4} rɨ^{4}tya·^{4} *he can't stand* [1] rɨ^{4}tya·^{43}u^{3} *you'll stand it* [1] tye·y^{32} [2] **Ql** tahʔ^{34} [1] **Co** té·ʔr^{21} [1] te·ŋ [2]. The final ʔ in some [1] forms seems to be a late development inasmuch as the vowels are reflexes of *V· rather than *V·ʔ.

62 ***tia·** *clay griddle* **Oz** i tö **Ll** yi^{23}tä·^{32} **Lc** ya ta **To** ʔye ta **RC** ye ta **A** ʔi ta **Le** ya tya.

63 ***tia·** *tender banana leaf used for patting out tortillas* **Oj** mo^{31} te^{2} *posole leaf* **Tp** hme^{1} tiódg^{21} **Pa** mu^{1}tyáw^{31} **Ll** me·^{3} tä·^{31} **Le** me·^{3}tyá·^{2} **Co** mo^{2}té·^{21}.

64 ***tiá·**^{HL} *sticky* **U** tie^{5} (34 expected) **Tl** tyó^{2} **Tp** tio^{3} **Pa** tyo^{3} **Ll** tä·h^{23} **Le** tya·^{4} (accent expected) **Co** té^{2} (length expected).

65 ***tiá·**^{LH} [1] *watch, spy (intr.)* ***tiá·ŋ**^{LH} [2] *watch, spy (tr. an. obj.)* **U** tą^{43} *spy on in order to kill* [2]

(source unclear; may reflect *taŋ) **Tp** tiog^{32} za^{2} [1] **Pa** tyaw^{32} [1] tyą^{32} [2] **Ll** tä·^{32} [1] te·n^{32} [2] **Le** ga^{3}tya^{4} [1] ga^{3}tyéy^{3} [2] (long vowel and 2 with an accent expected in both forms) **Co** té·iŋ^{21} [2].

66 ***tia·ŋ^{L}** *poor, pitiable* **Oj** ta^{3} ñi^{2} **U** a^{3}ti^{4}ñei^{3} **Pa** ti^{2}ŋyé^{2} **Ll** za^{3} ta·n^{3} **To** za tea (phonemic analysis here uncertain) **Le** za tye·y^{3} **Qi** ca^{3} ta^{3}ni^{3} **Co** ti ŋí·ŋ^{1}. The reduced reflexes in **Oj, U, Pa, Qi,** and **Co** are due to the pretonic position. The **Oj, U,** and **Qi** forms reflect an accent.

67 ***tị?** *sharp (used of the taste of unripe bananas)* **U** tẹị?^{5} *acrid* **Tl** tị́?^{2} **Pa** tị?^{1} **Ll** tị?^{3} **Le** ru?^{4}tị?^{2} **Qi** tị?^{24} **Co** tị́?^{12}.

68 ***tụ^{LH}** *drum, guitar* **U** a^{2}tẹụ^{3} **Tl** tẹ́w^{4} **Ch** tụ **S** tụ^{32} *guitar* **Tp** ci^{1}tọ^{32} *guitar* **Pa** tọ^{32} *guitar* **VN** tu (nasalization expected) **Ll** tụ^{3} **Le** tụ^{3} **Qi** tụ^{4} *guitar* **Co** tụ^{2} *guitar.*

69 ***tụ^{LH}** *deaf* **Oj** tọ^{2} **U** a^{3}tẹụ^{3} **Tl** ca^{3}tẹ́w^{4}.

70 ***tụ́^{HL}** [1] *two (inan.)* ***gia tụ́^{L}** [2] *twelve (inan.)* **Oj** tọ^{4} [1] kya^{4}tọ^{3} [2] **U** tẹụ^{34} [1] kia^{5}tẹụ^{4} [2] **Tl** tẹ́w^{2} [1] kya^{34}tą́w^{3} [2] (reflects *ụ́·) **Ch** tụ [1] **M** tụ [1] **S** tụ^{3} [1] (23 expected) kya^{3}tụ^{23} [2] **Qe** tẹụ [1] **Tp** gia^{3}tị^{2} [2] **Pa** tọ^{3} [1] gye^{3} tị^{2} [2] **VN** tọ [1] **Oz** na tụ [1] **Ll** tụh^{23} [1] gi^{23}tọ̈h^{3} [2] **Pe** gye tọ̈ [2] **Le** tụ́^{4} [1] ǰa^{4}tyụ^{34} [2] (3 and an accent expected) **Qi** tụ^{34} [1] dʸa^{4}tụ^{34} [2] **Co** tụ́^{2} [1] gi^{2}tụ^{2} [2] (12 and an accent expected). **Ll, Pe,** and **Le** reflect *tiụ́ rather than *tụ́ in the [2] forms.

71 ***tụ·^{L}** [1] *spill (past)*~***tiụ·** [2] *spill (nonpast)* **Oj** ka^{3}tọ^{2} [1] **U** a^{4}tạụ^{3} [1] tạị^{23} [2] **Tl** ka^{34}tạw^{3} [1] tạy^{4} [2] **Ch** tẹy [2] **S** ka tạị [1] **Qe** ma tạị [2] **Tp** tạg^{2} [1] **Pa** tẹw^{2} [1] tẹw^{32} [2] **Ll** ka^{23}tụ·^{3} [1] rɨ^{23}tọ̈·^{3} [2] **Le** ma^{43}tụ·^{3} [1] rɨ^{4}tyụ·^{3} [2] **Qi** ka^{3}tụh^{23} [1] tụ̈h^{34} [2] **Co** tụ́·^{2} [1].

72 ***tạ^{LH}** *bird* **Oj** tạ^{2} **U** họ^{43}tạ^{23} (3 expected) **Tl** tą́^{4} **S** tạ **Tp** i^{1}tạ^{32} **Pa** tạ^{32} **VN** tạŋ (ŋ not expected) **Oz** tạ **Ll** tọ^{3} **Le** tạ^{3} **Qi** tọ^{4} **Co** tạ^{2}.

73 ***tạ?** *put in* **U** tọ?^{23} **Ll** tọ?^{23} **Le** ga^{3}tạ·?^{4} (short vowel expected) **Qi** tọ?h^{3} (h not expected). This set may be related to *tá? etc. *put in.*

74 ***tạ·^{HL}** [1] ***tą́·?^{HL}** [2] *become accustomed* **Tp** rə^{2}tị^{2} [1] (ạ expected) **Pa** tạ^{2} *(present)* [1] lɨ^{3}tạ^{3} *(past)* [2] (the vowels of both forms reflect *CV·? but the tones reflect an open syllable; apparently the vowel quality of [2] and the tone of [1] apart from results of the accent, were generalized in the **Pa** paradigm) **Ll** tọ·^{23}ra^{2} *(first person plural)* [1] tọ?^{23} [2] **Le** tạ·^{23}a^{2} *(first person plural)* [1] (4 expected) tạ·?^{4} [2].

75 ***tạ·** [1]~***tiạ·** [2] *throw away (inan. obj.)* ***tạ·ŋ** [3]~***tiạ·ŋ** [4] *throw away (an. obj.)* **Oj a**^{4} tọ^{2} ?ni^{2} *don't throw it away!* [1] tẹ^{2} ?ni^{2} *throw it away!* [2] **U** tọ^{34} [1] tẹ^{3}

ʔnei^{3} *throw it away!* [2] **Tl** tǫ́^{2} [1] **Ch** ka tǫ [1] tyǫ *throw it away!* [2] **S** li tǫ co [1] **Tp** tą́ṷ^{2} za^{2} [1] tǫ́^{2} za^{2} [3] **Pa** tǫ^{32} *(first person singular)* [1] tęw^{2} [2] tyǫ́^{2} [4] **Ll** tǫ·^{32} [1] tę·^{3} *throw it away!* [2] tą·n^{32} [3] i^{23}tę·hn^{23}na^{23} *I'm going and throwing them away* [4] **Lt** ma tą [1] tyą ñu *throw it away!* [2] **Le** ga^{3}tą́·^{3} [1] tyą·^{3} *throw it away!* [2] **Qi** tǫ [1] (CVh expected) **Co** tǫ [1] tę [2] (vowel quality reflects long vowels in both **Co** forms).

76 ***tą́·^{LH}** *thorn* **Oj** tǫ^{2} **U** a^{2}tǫ^{43} **Tl** tǫ́^{4} **S** tǫ^{2} **Tp** nɨ^{1}tą́ṷ^{32} **Pa** tąw^{32} **VN** tąǫ **Ll** tǫ·h^{2} **Le** tą́·^{2} **Qi** tǫh^{43} **Co** tǫ́·^{21}.

77 ***tą́·^{HLH}** *avocado* **Oj** tǫ^{31} **U** ṷ^{4}tǫ^{2} **Tl** tyęw^{2} (reflects *tią·) **Ch** tǫ go **S** tǫ́^{1} **Tp** mɨ^{2}tǫ^{21} **Pa** tąw^{1} **VN** tǫą **Ll** mɨ^{2}tǫ·h^{2} **Le** tą **Qi** kwa^{3}tǫh^{242} **Co** gwɨ^{2} tǫ́·^{12} (accent not expected).

78 ***tią́·^{L}** [1] *be standing (pl. inan. subj.)* ***tią́·ŋ^{L}** [2] *be standing (pl. an. subj.)* **S** na^{1}tyǫ́^{23} [2] **Tp** tǫ́^{2} za^{2} [2] (the **Tp** and **Pa** forms reflect *tą·ŋ) **Pa** ni^{1}tǫ́^{2} [2] **Ll** tę·h^{3} [1] tę·hn^{3} [2] **Qi** nǫ^{2} tąḭh^{2} *(singular subj.)* [2] (3 expected) **Co** tę́·^{2} [1].

79 ***tią·** [1] *stick on, write down (inan. obj.)* ***tią·ŋ^{LH}** [2] *stick on, write down (an. obj.)* ***tą·** [3] *stuck on, written down (stative inan.)* **U** tię^{3} [1] tǫ^{3} [2] ma^{3}ra^{3}tǫ^{3} [3] **S** ra^{1}-tǫ^{32} [3] **Tp** tǫ^{32} [3] **Pa** tyṷ^{32} [1] tyǫ^{32} [2] tǫ^{32} [3] **Ll** tę·^{32} [1] tę·n [2] tǫ·^{23} [3] **Le** ga^{3}tyą́·^{3} [1] ga^{3}tyę·y^{3} [2] tą·^{43} [3] **Qi** tąh^{1} or ^{2} [1] tǫh^{1} or ^{2} [3] **Co** tǫ·^{12} [3].

*k

80 ***kɨ** *dream* **U** ki^{4} **Tl** kég^{2} **S** ra kɨ co **Tp** kɨ^{32} za^{2} **Pa** kɨ^{32} **Ll** kɨ^{23} **Le** kɨ^{4} **Qi** kɨh^{4} (h not expected) **Co** kɨr^{2}. The **U** form suggests *i, as does a rare **Ll** first person plural form ki^{3}-ra^{2}, which may suggest that at one stage this verb followed the common *i ~ *ɨ alternation pattern.

81 ***kɨ** [1] *stop (past)* ~ ***ki** [2] *stop (nonpast)* **U** keg^{34} [1] **Tl** kị [2] (nasalization not expected) **S** ka^{3}ki^{3} *(past)* [2] **Pa** kɨ́^{2} [1] kyí^{2} [2] **Ll** ka^{23} kih^{3} [1] rɨ^{23}kih^{3} [2] **Le** ma^{43}kɨ^{34} or ^{23} [1] ri^{4}kyi^{34} [2] **Qi** ka^{3}kɨ^{34} [1] tʸi^{34} [2].

82 ***kɨʔ^{LH}** [1] *fall over (inan. subj.)* ***kɨʔŋ^{HL}** [2] *fall over (an. subj.)* **Oj** kɨʔ^{3} ʔni^{2} [1] **U** kegʔ^{3} [1] (ag expected) kągʔ^{3} [2] **Tl** ka^{34}kęgʔ [2] **S** ka kịʔ co [2] **Tp** kịʔ^{3} or ^{2} za^{2} [2] **Pa** cyi^{1}kɨʔ^{32} [1] kąʔ^{3} [2] (the [2] forms of **Pa** and **Ll** reflect an accented syllable) **Ll** kɨʔn^{23} [2] **Le** ma^{43}kɨʔ^{4} [1] (2 and an accent expected) ga^{4}-kɨyʔ^{4} [2] **Qi** ka^{3}kɨʔ^{4} [1] **Co** kɨʔ^{1} [1] (2 expected).

83 ***kɨʔ** *cry* **Le** kɨʔ^{4} **Co** kɨʔ^{2}.

84 ***kɨʔ** *rosary* **Ll** mɨ^{31}kɨʔ^{1} **Le** mɨ^{4}-kɨʔ^{1}.

85 ***kɨ́ʔ^{LH}** *lizard* **Oj** či^{1}kɨʔ^{3} **U** a^{1}-kagʔ^{43} **Tl** kágʔ^{4} **S** kaʔ (ɨ expected) **Qe** kɨʔ kau *iguana* **Tp** i^{1}kɨ́ʔ^{32} **Pa** cyi^{1}kɨʔ^{31} (32 expected) **VN** ci kaɨʔ **Oz** ča kɨʔ **Ll** kɨʔ^{2} **Le** kɨ́ʔ^{2} **Qi** kɨʔ^{3} **Co** kɨʔ^{2}.

86 ***kɨ^{HL}** *pine* **Oj** ʔma^{2} kɨ^{2} **U** a^{2}-ʔma^{3} kag^{23} **Tl** ma^{3} kág^{4} **Ch** ʔma kag **M** ma kɨ **S** ʔma^{2} ka^{2} **Qe** ʔma kaɨ **Z** ma kɨ **Tp** kɨ^{2} **Pa** ʔma^{2} kɨ^{2} **VN** ʔma kaɨ **Oz** ʔma kɨ **Ll** ʔmo^{3} kɨ^{23} **Lc** ʔmo hwɨ kɨ **Le** mɨyʔ kɨ^{4} **Qi** kɨh^{4} **Co** kɨ^{12}.

87 ***kɨʔ^{HL}** *left (hand)* **Oj** ho^{1} tɨ^{4}kɨʔ^{2} **U** ta^{5}kegʔ^{3} **Pa** ta^{3}la^{3}kayʔ^{32} *counter clockwise* **VN** ko li kɨʔ (aɨ expected) **Oz** ri kąʔ (ɨ expected) **Ll** ti^{3}kɨʔn^{23} *backwards* (reflects an accented syllable; the **Ll** and **Le** forms also reflect a final *ŋ) **Le** na^{3}kɨyʔ^{43} (4 expected).

88 ***kɨʔ** [1]~***kɨ·ʔ** [2] *dress oneself* **Tl** kégʔ^{2} [1] kíʔ^{1} *(first person pl.)* [2] **S** kɨeʔ co [1] **Tp** kɨ́ʔ^{32} za^{2} [1] **Pa** káyʔ^{32} [1] kyeyʔ^{32} *(second person past)* [2] **Ll** kɨʔ^{32} [1] ki·ʔ^{3} *put on clothes!* [2] **Le** ga^{3}kɨ́ʔ^{3} [1] ga^{4}kyi·ʔ^{2}-a^{2} *(first person plural)* [2] **Qi** kɨhʔ^{2} ca^{3} [1] tʸi^{34} [2] (ihʔ expected; may not be cognate) **Co** kɨ·ʔr^{21} [1] ki·ʔ *(first person pl.)* [2].

89 ***kəʔ^{L}** [1] *eat (second person present)*~***keʔ^{L}** [2] *eat (second person past)*~***ke^{LH}** [3] *eat (first person plural).* These are morpheme alternants of *gəʔ *eat.* **Tp** kə́ʔ^{2} [1] (**Tp** and **Pa** [1] forms reflect an accented syllable.) **Pa** kɨ́wʔ^{2} [1] kyíʔ^{2} [2] kye^{32} [3] **Ll** kəʔ(n)^{3} [1] ka^{23}kyeʔ(n)^{3} [2] kye^{3}ra^{2} [3] **Co** kəʔ^{1} [1] (12 expected).

90 ***kəʔ** *dirty* **U** keʔ^{2} **M** kɨʔ.

91 ***kə·ʔŋ** *mixed* **Oj** na^{1}kąʔ^{2} **U** ni^{2}kǫʔ^{2} **Tp** rə^{2}kǫ́ʔ^{32} **Pa** rɨ^{2}kowʔ^{32} *mixed* kúwʔ^{2} *he mixes* **Ll** rɨ^{3}koʌ·ʔn^{32} **Lc** rɨ kaʔ(n) **To** rɨ kaʔn **Le** ka·ʔ^{43} ǰu·ʔ^{43} *(inan.)* ká·yʔ^{3} ǰú·yʔ^{3} *(an.)* **Qi** kaihʔ^{42} **Y** kaŋʔ **Co** sɨ kaŋʔ^{2} (long vowel expected).

92 ***kɨ^{LH}** *trash* **U** ma^{2} ki^{3} **Tl** meg^{2}-kég^{1} (tone 4 expected) **Ch** ma keg **M** ma kɨ **S** ma^{1}kɨ^{32} **Qe** ma kɨ **Z** ma kɨ (**Tl, Ch, M, S, Qe,** and **Z** forms reflect *ɨ) **Tp** hme^{1}ki^{32} **Pa** kyi^{32} **VN** kyi **Ll** ki^{3} *war* (seems to be a cognate in spite of semantic shift) **Pe** ki *trash, war* **Le** kyi^{3} **Qi** tʸi^{4} **Y** ki **Co** ki^{2}.

93 ***ki** *forehead* **Oj** či^{1}ki^{2}a^{2} **U** ma^{3}-ki^{43} **Tl** ci^{2}ki^{12} ceg^{3} **S** kye^{12}co^{2} **Qe** ci ki **Tp** ci^{1}kí^{3} **Pa** zi^{1}kyí^{32} za^{2} **VN** kyi hna **Ll** kih^{2} **To** mɨ ki **Le** kyí^{2} **Qi** tʸą^{2} tʸi^{2} **Y** ki **Co** de ki^{2}.

94 ***kɨ́^{LH}** [1]~***kɨ́^{LH}** [2] *pay* **Tl** ka^{34}kąg^{3} [2] (eg expected) **Tp** kɨ́^{32} za^{2} [1] **Pa** kyí^{32} za^{2} [1] kɨ́^{32} hní^{2} *(first person singular)* [2] **VN** kyi [1] **Ll** ki^{32} [1] kɨn^{32} *(first person singular)* [2] **Le** ma kyi^{32} [1] kɨy^{32} *(first person singular)* [2] **Qi** kɨh^{2} [2] (3 expected, but h not expected) **Y** ki [1] **Co** kɨr^{2} [2] (does not reflect an accented syllable). May be related to *kɨiŋ^{LH} *cost, be spent.*

95 ***ki·^{H}** *locust* **U** a^{1}si^{2}ki^{32} **Tl** ki^{1}-nay^{12} (i rather than expected ay because of pretonic position; uncertain whether tone reflects *^{H}) **Pa** cyi^{2}kyiw^{2} (1 expected) **Ll** ki·^{2} **Lt** kyi.

96 ***ku?** *heel* **U** kau?^{43} **Tl** kaw?^{42} **S** kɨe? **Tp** kú?^{32} **Ll** ku?^{23} **To** kɨ? (u expected) **Le** kṵ·?^{4} tɨ·^{2}a^{2} (nasalization not expected; **Le, Qi,** and **Co** reflect a long vowel) **Qi** kuh?^{42} **Co** ku·?^{21} tɨ·^{1}.

97 ***ku·^{H}** *money* **Oj** ku^{31} **U** o^{1}kau^{32} **Tl** kaw^{4} **S** kɨe, ku dạ *cents (red money)* **Qe** keu **Tp** ku^{21} **Pa** kow^{1} **VN** kau **Oz** ku **Ll** ku·^{2} **Le** ku·^{2} **Qi** kuh^{2} **Co** ku·^{1}.

98 ***ku·?^{L}** [1] *eat (third person persent inan. obj.)* ~ ***kú·?** [2] *eat (imperative; third person nonpresent inan. obj.)* ~ ***kiu·?** [3] *eat (first person plural inan. obj.)* ***ku·?ŋ^{LH}** [4] *eat (third person present an. obj.)* ~ ***klu·?ŋ^{LH}** [5] *eat (first person plural an. obj.)* **Oj** ku?^{3} ?ni^{2} *(imperative)* [2] ki?^{1} hna?^{1} [3] **U** keu?^{3} [1] kạụ?^{3} [4] (reflects a short vowel) **Tl** ku?^{4} [1] káw?^{3} *(second person past)* [2] (reflects a short vowel) kí?^{2} [3] **Ch** kaw? [2] kyu? hna [3] **S** kɨe? *(imperative)* [2] kyu? [3] **Tp** kag?^{2} za^{2} [1] **Pa** kəw?^{2} [1] **kɔ́w?^{3}** *(third person future)* [2] kyew?^{32} [3] kuw?^{32} [4] kyuw?^{32} [5] **VN** kau? [1] **Ll** ku·?^{3} [1] ku?^{2} *(imperative)* [2] kyö·?^{3}ra^{2} [3] ku·?n [4] kyu·?n^{3}na^{2} [5] **Le** ku?^{3} [1] kyu?^{32} [2] (long vowel expected in both forms) **Qi** ku?h^{3} [1] (h? with 23 expected) **Co** ku?r^{1} [1] (a long vowel with 23 and an accent expected).

99 ***ku·?^{HL}** *it hurts* **Oj** e^{2} ku?^{2} či^{23} hna^{3} *my head hurts* **U** keu?^{3} **Tl** ku?^{4} **S** kɨe?^{2} **Tp** kɨ?^{2} **Pa** kaw?^{32} **Ll** ku·?^{23} **Le** ku·?^{43} (tone 4 expected) **Qi** ku?^{4} (h expected) **Co** ku?^{1}.

100 ***ku·?** *(to) fence* **Ll** ku·?^{32} **Le** ku·?^{32}.

101 ***ku·?ŋ^{HL}** [1] *get stuck in a tight place (intr.)* ***kú·?ŋ^{LH}** [2] *stuck in a tight place (stative)* **U** si^{2}kạụ?^{5} [1] (reflects a short accented vowel) **Tp** rə^{2}kɨ?^{32} [2] (reflects a syllable without the final *ŋ) **Pa** kuw?^{32} [1] **Ll** ka^{23}ku·?n^{23} [1] rɨ^{3}ku·?n^{32} [2] **Co** kuŋ? *(tr.)*.

102 ***kú·?ŋ** *be joined* **U** kẹụ?^{2} *(intr.)* **Tl** la^{2}kẹ́w?^{4} *(stative)* **Pa** kuw?^{32} or kúw?^{2} *(tr.)* **Ll** ka^{23}ku?n^{23} *(intr.)* ku?n^{32} *(tr. inan.)* **Le** kụy?^{32} *(tr.)* (nasalization not expected) **Co** kuŋ? *(tr.)*.

103 ***ká^{H}** *corn borer* **Oj** ha?^{3} ka^{1} **U** a^{1}ka^{23} **Tl** ką́^{1} (nasalization not expected) **S** ha^{1}ka^{12} **Tp** i^{1}ká^{1} **Pa** cyi^{1}-ká^{1} **Ll** koh^{2} **Co** kó^{1}.

104 ***ka?** *touch, play with* **Tl** kó?^{2} **Ll** ko·?^{32} (the **Ll** and **Le** forms reflect a long vowel) **Le** ka·?^{32} **Co** ka?^{2}.

105 ***ká?^{HL}** *outside* **Oj** tɨ^{4}ko?^{4} **U** ta^{4}ko?^{5} **Tl** teg^{3}ko?^{4} *back* (reflects a syllable without accent) **S** ka? ?nyu

(o expected) **Tp** ka^{1}ʔné^{21} (reflects *ka, but the tone is difficult) **Pa** tɨ^{3}kaʔ^{31} *behind* **VN** tɨ koaʔ **Ll** rɨ^{23}-koʔ^{23} *behind* **Pe** lɨ koʔ *behind* **Lt** ǰa kaʔ *behind* **Le** ruʔ^{4}ka·ʔ^{3} *behind* (short vowel expected) **Qi** koʔ^{3} *near* **Co** ka^{2}lu·^{1} (reflex in a pretonic syllable). May be related to *ka·ʔ *back.*

106 ***ka·^{LH}** *play* **Oj** ko^{31} ʔni^{2} *(imperative)* (tone does not match) **U** di^{2}ko^{3}i^{3} *(third person plural)* ma^{5}-kie^{32} hnia^{1} *let's play* (reflects *kia·) **Tl** kó^{4} (reflects an accented syllable) **Ch** e di ko **S** na ko **Qe** la ko **Tp** ko^{32}za^{2} **Pa** kow^{32}za^{2} **VN** koa hna *(first sg.)* **Ll** ko·^{32} (reflects an accented syllable) **Qi** koh^{4} **Co** ko·r^{1} (2 expected).

107 ***ka·^{HLH}** [1] *dumb (inan., and an. in special syntactic positions)* ***ka·ŋ^{HLH}** [2] *dumb (an.)* **S** kǫ́^{1} [2] **Tp** kǫ^{21} [2] **Pa** kaw^{1} [1] kow^{1} [2] **Ll** za^{3} ko·^{232} [1] ka·n^{232} za^{3} [2] **Le** ka·y^{42} [2] **Qi** ca^{3} kaih^{242} [2].

108 ***ka·** [1] *burn (nonfuture inan. subj.)* ~ ***kia·** [2] *burn (future inan. subj.)* ***ka·ŋ** [3] *burn (nonfuture an. subj.)* ~ ***kia·ŋ** [4] *burn (future an. subj.)* **Oj** e^{2} ka^{3}ko^{3} [1] a^{4} kạ^{23} ʔni^{2} *don't get burned!* [3] **U** ko^{23} [1] sa^{4} kie^{4} *it won't burn* [2] **Tl** ma^{3}ci^{2}kó^{2} [1] **S** ka ko [1] ka kǫ ca [3] **Tp** kau^{2} [1] **Pa** kəw^{2} [1] kyéw^{3} [2] kuw^{2} [3] kyúw^{3} [4] **VN** kao [1] **Oz** mɨ ko *kerosene* [1] **Ll** ko·^{3} [1] kya·h^{3} [2] ka^{23}ka·n^{3} [3] rɨ^{23}ka·hn^{23} *he'll get burned* [3] (a [4] form expected) **Le** ka [1] **Qi** koh^{23} [1] **Co** ko·^{1} [1]. Cf. *ka·ŋ^{L} *angry.*

109 ***ka·** *iguana* **U** a^{1}kagʔ^{43} ko^{1} **Tl** keg^{4} ko^{1} **Ch** kagʔ ka (o expected) **S** kɨ ko **Qe** kɨʔ kau **Tp** i^{1}kɨʔ^{21} káu^{21} **Pa** ci^{1}kɨʔ^{31} káw^{31} **VN** kaɨʔ kao **Ll** kɨʔ^{2} i^{3}ko·h^{3} **Lt** kɨʔ ya ka **Qi** kɨʔ^{4} koh^{42} **Co** kɨʔ^{2} kó·^{21}.

110 ***ka·ŋ^{L}** *angry* **Oj** kạ^{2} **U** kǫ^{3} **Tl** kǫ^{3}. Initial consonant could be reconstructed as *g; the vowel might be nasalized if the initial consonant is *k. This set may be a part of the *ka· *burn* set.

111 ***ka·ʔ^{H}** *back* **Oj** kaʔ^{1}a^{2} **U** ma^{3}-kaʔ^{32} **Tp** mɨ^{2}kaʔ^{21} za^{2} (21 occurs in **Tp** obligatorily possessed nouns rather than the more common 31) **Pa** kaʔ^{1} za^{2} **VN** ka lu za (**VN** and **Oz** reflect *ka in pretonic position) **Oz** ka lu hni *my back* **Ll** ko·ʔ^{2} *above* **Qi** kohʔ^{42} tʸi^{2} **Co** moʔ ko·ʔ^{21}. This set may well be related to *káʔ^{HL} *outside.*

112 ***ka·ʔ^{H}** [1] *big (inan.)* ***ká·ʔŋ^{H}** [2] *big (an.)* **U** kaʔ^{2} [1] kạʔ^{2} [2] (both forms reflect an accented syllable) **Tl** kaʔ^{1} [1] kạʔ^{2} [2] (tone does not match) **Z** kaʔ [1] **Tp** kaʔ^{31} [1] kạʔ^{31} [2] (both forms reflect an unaccented syllable) **Oz** kaʔ [1] **Ll** ko·ʔ^{2} [1] kəʔn^{2} [2] **Qi** kohʔ^{42} [1] **Co** ko·ʔ^{21} [1].

113 ***ka·ʔŋ** *lose one's way* **Oj** a^{4} kwa^{3}kạʔ^{31} ʔni^{2} **U** ŋeg^{23} kǫʔ^{2} (ạ expected) **Ch** kạʔ **Tp** zɨ^{2}kǫ́ʔ^{32} za^{2}

hui̇^{32} (ą expected; the **U** and **Tp** forms may reflect a short vowel) **Pa** zi̇^{3}ko?^{32} za^{2} **Ll** si̇^{3}ka·?n^{32} **Qi** ŋa^{4}-kaih?^{42}.

114 ***kiu**^{H} *leg* **Oj** mo^{2}ki^{1}a^{2} **U** ma^{3}-ki^{32} (2 expected) **Tl** kyu^{42} ceg^{3} (42 occurs in **Tl** obligatorily possessed nouns rather than the more common 2) **M** ma kyu za **S** kyu^{1} **Qe** ki **Tp** mi̇^{2}ki^{21} za^{2} *leg* ci̇^{1} me^{1}ki^{1} za^{2} *pants* **Pa** kyu^{1} *(possessed form)* **VN** kyu za **Oz** sa kye hni *my leg* **Ll** kyö^{2} **Le** kyu **Qi** tʸü^{2} **Y** kyü **Co** kiö·^{1} (short vowel expected).

115 ***kiú**^{LH} *coati* **Oj** ki^{3} **U** a^{2}ki^{43} **Tl** kí^{3} **Ch** kyu **M** kyu **S** kyu^{23} **Qe** ki **Tp** i^{1}kí^{32} **Pa** kyú^{32} **VN** kyu **Oz** kye **Ll** kyöh^{2} **Le** kyú^{2} **Qi** tʸü^{3} **Co** kiő^{21}.

116 ***kiu·?**^{H} *corner of the house* **Tp** ki?^{31} **Pa** kyu?^{31} (1 expected) **Qi** tʸüh?^{42} **Co** kiu̇·ŋ?^{21} (neither nasalization nor ŋ expected).

117 ***kiu·?** *chop, cut* **Oj** ki?^{31} ?ni^{2} *(imperative)* **U** kei?^{2} **Tl** kí?^{2} **Ch** ki? (the **Ch, M, S,** and perhaps **Qe** and **Qi** forms reflect a short vowel) **M** ki? **S** ñi^{1}kye(i)?^{1} *(past)* kwa^{1}-kyei?^{32} **Qe** kwa kye? **Tp** kí?^{32} za^{2} **Pa** kyú?^{32} za^{2} **VN** kyu? **Ll** kyö·?^{32} **Le** kyu·?^{32} **Qi** tʸü?h^{3} **Co** kiő·?r^{21}.

118 ***kia** *dirty* **Tl** kya^{2} **Ch** kya **S** ma kya ?la? **Qe** kya.

119 ***kia?** [1] *of him, her, them (inan.)* ***kiaŋ** [2] *of him, her, them (an.)* **Oj** ki?^{1} [1] kyą^{1} [2] **U** kie? [1] ki?^{1}-i^{3} (the second **U** form and probably the first **Oj** form reflect *ki?) **Tl** kyo?^{1} [1] **Ch** e kyo dąu *of the baby* [1] **M** kye ca [1] **S** kyo(?) co [1] **Tp** kió?^{32} [1] kiąʔ^{32} [2] **Pa** kya?^{32} za^{2} [1] kyąʔ^{32} [2] **VN** kye? [1] **Oz** kye do [1] (the **Ch, M,** and perhaps **S** and **Oz** forms reflect *kia·; cf. forms in next set) **Ll** kye?^{2} [1] kye·?^{32} [1] (the vowels of both **Ll** [1] forms suggest a short vowel) kyehn^{2} [2] kye·n^{32} [2] **A** ki? [1] **Le** kya? [1] **Qi** tʸa?h^{4} [1] tʸa?^{4} ?i^{2}ɗo^{2} [1] **Co** kiá?r^{2}. The following set is probably related: *kiá· [1] *kiá·ŋ [2] *my* ([1] may have an inanimate referent and [2] an animate referent) **Oj** ki^{13} [1] (probably reflects *ki·; cf. **Oj** and **U** forms of preceding set) **U** kję^{4} [2] **Tl** kyo^{12} [2] **Ch** e kyo hna [1] **M** kye hna [1] **S** ?i kyo hna [2] **Qe** kyo hna [2] **Tp** kió^{3} [1] kiąʔ^{3} [2] **Pa** kyew^{3} [1] kyą^{3} hní^{2} [2] **VN** kye [1] **Oz** kyą [2] **Ll** kyahn^{23} [1] (long vowel expected) kye·n^{23}na^{23} [2] **A** kya [1] (ki expected) **Le** kye [1] (a expected) **Qi** tʸiah^{242} [1] **Co** kie^{12}e [1] (long vowel expected).

120 ***kia·**^{H} *palm* **Tl** kyó^{1} or mi^{2}-kyo^{12} (4 expected) **S** ?ma mi^{2}kyo^{3} **Tp** ci̇^{1}kio^{1} **Pa** kyew^{1} *type of thatching leaves* **Ll** me·^{3} kya·^{2} *palmetto* **Lc** ?mo mi kya **To** me kye **A** ?mo me ki **Lt** me kya **Qi** ?mo^{34} u̇^{1}tʸiah^{2} *tree used in making mats.*

121 ***kia·**^{H} *firefly* **Tp** si^{1}kio^{1} **Pa** cyi^{1}kyew^{1} **Oz** či lu kyu (a expected) **Ll** kya·^{2}.

122 ***kia·**^{L} [1] *lie down (intr.)* ***kia·ŋ**^{LH} [2] *lying down (stative)* **Oj**

kye^{2} ʔni^{2} *(imperative)* [1] **U** ra^{3}kia^{3} [2] (reflects *kia) **Tl** kyo^{34} [2] (ǫ expected) **S** ka^{3}kyo^{2} [1] **Qe** la kyu *he placed it* [1] **Tp** kiog^{2} za^{2} [1] rə^{2}kiạ^{32} za^{2} [2] **Pa** kyew^{2} [1] rɨ^{2}kyǫ^{32} [2] **Oz** mɨ ni kyạ [2] **Ll** ka^{23}kya·^{3} [1] rɨ^{3}ka·ʔn^{32} [2] (reflects *ká·ʔŋ) **To** mɨ kye za [1] **A** mɨ ki [1] **Le** ri^{4}kya·^{3} [1] **Qi** tʸiah^{23} [1] **Y** kye *place* [1] **Co** kie·r^{1} [1].

123 ***kiá·** *chile ancho* **Ll** ʔụ^{23} kya·h^{2} **To** ʔụ kye **A** mɨ ʔụ ki.

124 ***kia·ʔ**^{L} *parrot* **U** a^{1}kiaʔ^{3} **Tp** i^{1}kiáʔ^{1} (2 expected without accent) **Pa** kyíʔ^{2} (no accent expected) **Ll** kya·ʔ^{3} **To** kyeʔ **Le** kyaʔ^{3} (long vowel expected) **Qi** tu^{3}tʸiahʔ^{23} **Co** tu^{2}kieʔ (long vowel expected).

125 ***kia·ʔ**^{L} or ^{HL} *dig* **U** kiaʔ **Tl** kyaʔ^{4} **S** kwa^{1}kyáʔ^{2}.

126 ***kɨ**^{LH} [1]~***kɨ·** [2] *tie, knot* **U** kạg^{3} [1] ke(i)ʔ^{4} *(second person past)* [2] (nasalization expected; vowel reflex uncertain) **Tl** kɨ^{34} [2] (fits the tone of [1]) **Pa** kɨy^{32} [1] kyịw *(second person past)* [2] **Ll** rɨ^{3}-kɨ·n^{31} *(stative)* [1] (probably reflects accented syllable) (this form and the **Y** and **Co** forms reflect a final *ŋ) kɨ·^{2}ra^{3} *(plural imper.)* [2] **Le** ga^{3}kɨ·^{3} [1] ga^{4}kyɨ·^{2}a^{2} [2] **Y** kaŋ [1] (ɨ expected) **Co** sɨ^{1}kɨ·n^{1} [1] (nasalization and 2 expected).

127 ***kɨ·ŋ**^{L} *afterward* **U** ta^{5}kạg^{3} (the **U, Tp,** and second **Tl** forms reflect no *ŋ) **Tl** ci^{2}kę́g^{2} or kạg (3 expected) **Tp** kạg^{2} **Pa** cyi^{1}kǫ́^{3} (the tone of the following form fits the tone correspondence) kạ^{2} *he followed* **Ll** kɨ·n^{3} **Le** za^{3}kɨ·y^{3}.

128 ***kɨ·ʔŋ** *be covered* **Ll** kɨ·ʔn^{32} **Le** kɨ·yʔ^{3} **Co** kɨŋʔ.

129 ***kɨ́·ŋ**^{LH} [1] *cost, be spent (present)*~***kɨ·ŋ**^{L} [2] *cost, be spent (nonpresent)* **Oj** kɨ^{2} [1] **U** kẹɨ^{43} [1] **Tl** kɨ́^{4} [1] **S** kyẹ [1] **Qe** kyẹɨ [1] **Tp** kẹ^{32} [1] **Pa** kyẹ^{32} [1] ka kǫ́^{2} *(past)* [2] **Ll** kɨ·hn^{23} [1] (**Ll, Le,** and **Ql** [1] forms reflect *^{HL}) ka^{23}kɨ·hn^{3} [2] **Le** kyɨ́·y^{4} [1] **Qi** tʸɨh^{3} [1] **Co** ki·ŋ^{21} [1] (accent and nasalization expected). This form may be related to *kɨ́^{LH} ~*kɨ^{LH} *pay.*

130 ***kụ** *pick (fruit)* **Tl** kụ́^{2} **Le** kụ^{4} **Co** kụ.

131 ***kụŋ** *close (book)* **Ll** kụn^{32} **Le** kụy^{32}.

132 ***kụ́**^{HLH} *stone* **Oj** kǫ^{31} **U** a^{2}-kạụ^{2} **Tl** kạw^{2} **S** kɨ^{1} **Qe** kẹụ **Tp** nɨ^{1}-kạg^{1} **Pa** kạw^{1} **VN** kạụ **Oz** ča kụ **Ll** kụ·h^{2} **Le** kụ́·^{1} **Qi** kụh^{242} **Y** kụ **Co** kụ·^{12}.

133 ***kụ́**^{HLH} *rainbow* **U** a^{5}kạụ^{2} **Tl** meg^{2}kạw^{2} **S** hmɨ^{2}kɨ^{1} **Qe** mɨ kẹụ **Tp** mɨ^{1}kạg^{1} **VN** kạụ **Ll** mɨ^{31}kụ·h^{1} **Lt** hmɨ kụ **Qi** kụh^{242} tuhʔ^{242} **Co** kụ·^{12}.

134 ***kụ́**^{LH} *tail* **Oj** či^{1}kǫ^{2} **U** dya^{1}-kạụ^{43} **Tl** kạ́w^{4}ceg **Ch** (ci) kạw **S** kɨẹ^{2} **Tp** ne^{1}kǫ^{32} háʔ^{2} **Pa** kǫw **VN** kạụ **Ll** kụ·h^{2} **Lt** kụ **Qi** ʔmo^{3} kụh^{43} **Co** ni kụ́·^{21}.

135 ***kąH** *cornmeal* **Oj** ką^{1} **U** o^{1}ką^{3} (2 expected) **Tl** ką^{2} **S** ką **Tp** ti^{1}ką^{1} **Pa** ką^{1} **VN** ką **Oz** ką **Ll** kǫ^{2} **Lc** kǫ **Pe** kǫ **To** kǫ **RC** kǫ **Le** ką **Qi** kǫ^{2} **Co** ką^{1}.

136 ***ką** [1]~***kią** [2] ***ką·** [3]~***kią·** [4] *bring, take, carry* (these stems are used in several ways to mark motion toward or away from speaker and toward or away from home base) **Oj** ña^{2} ką^{1} ʔni^{2} *bring it!* [1] kǫ^{1} ʔni^{2} *take it!* [3] kị^{3} ʔni^{2} či^{3} *breathe (take air)!* [4] (kyę expected) **U** ką^{23} *charge (money)* [1] ni^{2}kią^{3} *went to bring* [2] kǫ^{3} tʸi^{4} *breathe* [3] **Tl** ką́^{3} *bring* [1] kyą́^{2} [2] kę́w^{4} *take* [3] **Ch** kąw *takes* [3] (ǫ expected) **M** kǫ ca ci *breathe* [3] **S** ka ką ci co *breathed* [1] ca kyą *is bringing* [2] kwa kǫ *takes* [3] ma li kyǫ co *took* [4] **Tp** ką́^{2} za^{2} *charge* [1] kią^{32} za^{2} *bring* [2] kǫ^{2} za^{2} *take home* [3] kiǫ^{2} za^{2} *bring home* [4] **Pa** ką́^{2} za^{2} *take* [1] kyị^{2} hnye?^{1} *we take* [2] kąw^{2} za^{2} *take home* [3] kyęw^{2} hnye?^{1} *we take home* [4] **VN** kǫ *takes* [3] (ąǫ expected) **Oz** kyą *breathe* [2] **Ll** kǫ^{32} *take* [1] ku^{3}kyę^{3} *go bring!* [2] ri^{23}kǫ·h^{23} *will take home* [3] ku^{3}kyę·h^{23} *go bring back!* [4] **Lc** kyę *take* [2] or [4] **To** kyę *bring* [2] or [4] **A** ku kyę *go bring!* [2] or [4] **Le** ką^{32} [1] kyą^{32}a^{2} *take* [2] ką·^{4} [3] kyą·^{42}a^{2} [4] *take back* **Qi** kǫ^{34} ca^{3} tʸi^{34} *breathe* [1] tʸąh^{4} *bring* [4] **Co** kár^{12} *take* [1] (nasalization expected) kięr^{2} *bring* [2] kǫ· *take back* [3].

137 ***kąʔŋHL** [1]~***kią·ʔŋHL** [2] *full, fill* **Oj** kąʔ^{2} [1] **U** si^{2}kąʔ^{3} [1] **Tl** lá^{34}ką́ʔ^{4} [1] **Ch** hma kąʔ [1] *fill* ci kǫʔ *full* [1] (the second form does not reflect a final *ŋ) **M** ci kąʔ [1] **S** ma^{2}kąʔ^{23} [1] **Tp** ci^{2}kąʔ^{2} [1] **Pa** ci^{1}ką́ʔ^{2} [1] **VN** ci kąʔ [1] **Oz** na kąʔ [1] **Ll** ti^{2}kǫʔn^{23} *full* [1] ri^{23}kyę·ʔn^{23} *will fill* [2] **To** mi kyąʔ [2] **A** la kǫʔn [1] **Le** na kąyʔ [1].

138 ***kąL** [1] *one (inan.)* ***gia kąL** [1] ***gia ką́HL** [2] ***gia kią́L** [3] *eleven* **Oj** kǫ^{2} [1] kya^{4}kǫ^{2} [1] **U** kǫ^{3} [1] kią^{5}kǫ^{3} [1] **Tl** kęw^{3} [1] kya^{34}kęw^{3} [1] **Ch** kǫ [1] kya kǫ [1] **S** kǫ́^{2} [1] kya kǫ [1] or [2] **Tp** kąu̯^{2} [1] gia^{3}ką́u̯^{3} [2] (accent in the **Tp** and **Pa** forms not expected) **Pa** kǫw^{2} [1] gye^{3}ką́w^{3} [2] **VN** kąǫ [1] **Oz** kǫ [1] gya kǫ [1] or [2] **Ll** kǫ·^{3} [1] gi^{23} kyę·h^{3} [3] **A** gya kị [3] **Le** ką·^{3} [1] gya kyą [3] **Qi** kǫh^{23} [1] dʸa^{4}kǫh^{4} [2] (**Qi** and **Co** forms do not reflect an accented syllable) **Co** kǫ·^{2} [1] gi^{2}kǫ^{12} [2].

139 ***kiú̯L** [1] *four (inan.)* ***kiú̯ŋ** [2] *four (an.)* **Oj** kị^{3} [1] or [2] **U** kị^{4} [1] **Tl** kị́^{3} [1] **Ch** kyu̯ [1] **M** kyu̯ [1] **S** kyu̯^{23} [1] kyu̯^{3} [2] (23 expected) **Qe** kị [1] **Tp** kę́^{2} [1] **Pa** kyú̯^{2} [1] gye^{3}kyị́^{2} *fourteen* [1] kyǫ́^{2} [2] **VN** kyu̯ [1] kyu̯ŋ [2] **Oz** kyę [1] **Ll** kyǫ̈h^{3} [1] kyu̯hn^{3} [2] **Le** kyú̯^{3} [1] **Qi** tʸü^{34} [1] dʸa^{4}tʸü^{4} [1] tʸu̯ị^{2} [2] (24 expected in all the **Ql** forms) **Co** kiǫ̈^{12} [1] (accent expected).

140 ***kiu̯L** [1] *dry (inan.)* ***kiu̯·ŋL** [2] *dry (an.)* **Oj** kị^{2} [1] **U** kęị^{3} [1] ma^{3}kị^{3} [2] **Tl** kị^{3} [1] **Ch** ma kịŋ [1] (ŋ not expected) **M** kyęị [1] **S** kyęị^{2} [1] **Qe** kyęị [1] **Tp** kęị^{2} [1] **Pa** kyịw^{2}

[1] kyǫ^{2} [2] **VN** kyu̯ [1] **Oz** kyę [1] **Ll** rɨ^{3}kyǫ̈·^{3} [1] rɨ^{3}kyu̯·n^{3} [2] **To** rɨ kyö [1] (nasalization expected) **Le** kyu̯·^{3} [1] **Qi** t^{y}ǫ̈h^{23} [1] t^{y}u̯ih^{23} [2] **Y** kyǫ̈ [1] **Co** kiǫ̈·^{2} [1].

141 ***kiu̯·LH** *beat, pound* **U** kęj^{3} **S** kyęj^{23} (reflects accented syllable) **Tp** kęj^{32} za^{2} **Pa** kyęw^{32} **Ll** kyǫ̈·^{23} (3 expected) **Le** kyu̯·^{4} (3 expected) **Co** kiǫ̈·r^{1} (tone 2 expected).

142 ***kiú·L** *tasty* **Tl** ma^{3}kí^{3} **S** ma^{2}-kyęj^{3} (23 expected) **Tp** hmá^{2} kę́j^{2} **Pa** ma^{2}kyíw^{2} **Ll** mɨ^{3}kyǫ̈·h^{3}.

143 ***kiu̯·ʔ** *touch* **Ll** kyǫ̈·ʔ^{32} **Le** kyu̯·ʔ^{32}.

144 ***kiąHL** *below* **Oj** tɨ^{4}kią^{4} *low altitude* **U** ta^{5}kją^{34} **Tl** kyą^{2} (accent expected) **S** ti kyę **Tp** kiąʔ^{2} and le^{2}kią^{3} (second form matches tone correspondence) **Pa** tí^{3}kyí^{2} (3 expected) **Le** ša? kyą.

145 ***kiąŋ** *trip, stumble* **Pa** kyą^{32} **Ll** ti^{23}kyę·n^{31} (length not expected).

146 ***kiąʔHL** *with* **Tl** kyǫʔ^{2} (reflects accented syllable) **Tp** kiąʔ^{31} (**Tp** and **Pa** forms reflect a long vowel; both also apparently reflect an accented syllable and, therefore, 3 is expected in the **Tp** form) **Pa** kyąʔ^{1} or ^{31} (second form matches tone correspondence) **Ll** kyąʔ^{2} **Qi** t^{y}ąʔ^{4} *near* **Co** kiąʔ^{12} *near.*

*kw

147 ***kwɨ·L** *corn* **Oj** kwɨ^{2} **U** u̯^{4}ku^{3} **Tl** kwu^{3} **S** kwu^{2} **Qe** mɨ ku *kernels of corn* **Z** ku **Tp** kuɨg^{2} *cornfield* **Pa** kwɨy^{2} **VN** ʔnɨ kwu *corncob* **Oz** mɨ kwɨ *kernels of corn* **Ll** kwɨ·^{3} **Le** kwɨ·^{3} **Qi** kwuh^{23} *cornfield* **Co** kwɨ·^{2}.

148 ***kwɨ·HL** *cooked* **Oj** kwɨ^{2} **U** ku^{23} **S** ma kwo **Qe** ma ku **Tp** kuɨ^{2} (ɨg expected) **Pa** kwu^{2} (ɨy or ay expected) **Ll** rɨ^{3}kwɨ·^{3} (23 expected) **Le** na kwɨ **Co** kwɨ·^{12} (accent expected).

149 ***kwɨ·HLH** *firewood* **Oj** na^{1}kwɨ^{2} (31 expected) **U** na^{2}ku^{1} **Tl** kwu^{42} **S** kwo^{1} **Qe** ku **Tp** nɨ^{1}kuɨg^{1} **Pa** kway^{1} **VN** kwu **Oz** na kwɨ **Ll** kwɨ·^{232} **Le** kwɨ·^{42} **Qi** kwuh^{242} **Co** kwɨ·^{12}.

150 ***kwɨ·** *sugar, cane* (perhaps derived from *kwɨ·L *corn)* **Oj** hwɨ^{1} kwɨ^{2} **U** o^{1}heu^{2}ku^{3} **Tl** ma^{2}kwú^{1} **Ch** hu kwu **M** ʔma kwu **S** hwɨ kwu **Qe** hwɨ ku **Tp** kuɨg^{1} ŋíʔ^{32} **Pa** ʔma^{2} kwɨy^{2} **VN** ʔma kwu **Le** mɨyʔ kwɨ *a cane-like stalk* **Qi** kwa^{1} ñiʔ^{4} (uh expected; present form probably due to pretonic position) **Co** kwɨ ŋiʔ^{1} (long vowel expected).

151 ***kwə** [1] ***kwə·** [2] *give (inan. obj.)* ***kwəŋ** [3] *give (an. obj.)* **Oj** kwo^{1} ʔni^{2} [1] or [2] kwɨ^{31} ʔni^{2} [3] (tone suggests a long vowel) **U** kue^{23} [1] or [2] **Tl** kwé^{2} [1] kwę́^{2} [3] **M** kwɨ [1] or [2] **S** li kwe co [1] or [2] **Qe** ma la kwe [1] or [2] **Tp** kuə^{32} za^{2} [1] or [2] **Pa** kwɨ^{32} za^{2} [1]

kway^{32} za^{2} *(intr.)* [2] kwa^{32} za^{2} [3] **VN** kwə [1] or [2] **Oz** kwa [1] or [2] **Ll** kwə^{23} *(tr. inan. obj.)* [1] kwə·^{23} *(ditr. inan. obj.)* [2] kwən^{32} *(tr. an. obj.)* [3] **Le** kwo^{4} [1] kwo·^{4} [2] kwoy^{32} [3] **Qi** kwoh^{4} [2] **Co** kwər^{2} [1] kwə·ŋ [3] (short vowel expected).

152 ***kʷə** [1] ***kʷe** [2] *sneeze* **Tl** kwé^{3} [1] **Tp** kué^{2} za^{2} [1] (ə expected) **Pa** kwí^{2} [1] or [2] **Oz** ma kya [2] **Ll** kwa^{32} [2] **Le** kwe^{32} [2] **Co** kwír^{2} (reflects *i).

153 ***kʷi·ᴸᴴ** [1] *know (inan. obj.)* ***kʷi·ŋᴸᴴ** [2] *know (an. obj.)* **Oj** hma^{1}kwi̱^{2} ʔni^{2} ca^{2} [2] **U** ku^{23} *(third person singular)* [1] kụ^{43} *(first person singular)* [2] **Tl** kwú^{3} [1] (4 expected) **Ch** kwụ [2] **S** tya kwo hna *(first person singular)* [1] **Qe** tya kọ na *(first person singular)* [2] **Tp** kuɨʔ^{32} za^{2} [1] kui̱^{32} za^{2} [2] **Pa** kwuʔ^{32} za^{2} [1] mi^{2}kwe^{32} za^{2} [2] **VN** kwu [1] (i expected) **Ll** kwi·^{3} [1] kwi·n^{23} [2] (3 expected) **Le** kwi̱^{3} [2] (the variant -n of the animate marker is expected rather than nasalization) **Qi** kwi̱h^{4} ca^{2} [2] **Y** kwi [1] **Co** kwí·r^{12} [1] (2 expected without an accent). **Pa** and **Tp** [1] forms reflect *kʷi·ʔ. **Oj** through **Pa** reflect an accented syllable while **Ll** through **Co** reflect an unaccented syllable.

154 ***kʷeᴴ** *large quadruped* **Oj** co^{4} kwa^{1} *horse* kwa^{1}hwɨ^{2} ʔye^{31} *cow* kwa^{1} no^{2} *deer* **U** a^{2}kua^{32}hegʔ^{32} *horse* (2 expected in all the **U** forms of this set) a^{5}kua^{32}heu^{23} *cow* a^{2}kua^{32} nau^{3} *deer* **Tl** ceg^{3}kwá^{2} *horse* (accent not expected) kwa^{2}náw^{1} *deer* **Ch** kwa *horse* kwa naw *deer* **S** ca^{2}kwa^{1} *horse* kwa hwɨ ʔyo *cow* kwa nɨ *deer* **Qe** ca kwa *horse* kwa hwɨ ʔyu *cow* kwa nei *deer* **Tp** i^{1}kua^{1} *horse* i^{1}ka^{2}huɨ^{32} *cow* **Pa** kwɨ^{1} *horse* cyi^{2}ka^{1}hwu^{2} *cow* kwa nuw^{1} *deer* **VN** ka hɨʔ *horse* ka nau *deer* **Oz** kya hɨʔ *horse* kya ʔya *cow* **Ll** kwa^{2} *horse* kwa^{2}ʔyo·ʔ^{3} *cow* kwa^{2}nu·^{3} *deer* **Pe** kwa ʔyeʔ *cow* **To** kwa ʔyeʔ *cow* **RC** kwa zo *horse* kwa ʔyaʔ *cow* **A** kwe *horse* kwe ʔyeʔ *cow* **Le** kwe^{2} *horse* kwe yaʔ *cow* kwe nu *deer* **Qi** kwa^{2} *horse* kwa^{2} nuh^{23} *deer* **Y** kwe *horse* **Co** kwia^{1} *horse*. The loss of u/w/y in some **Tp, Pa,** and **VN** forms is probably due to pretonic position. The following set differs by tone in most languages but is no doubt related to this set.

155 ***kʷe** *monkey* **U** a^{1}kua^{4} **Tl** kwa^{3}hlá^{2} **Ch** kwa ʔu **S** kwa ʔuʔ **Qe** kwa^{HL}a **Tp** i^{1}kua^{32} **Pa** kwɨ^{32} **VN** kyu **Ll** kwa^{2}ʔu·ʔ^{3} **A** kwe ʔuʔ **Lt** kwe ʔuʔ **Qi** kwa^{3} ʔuhʔ^{23} **Co** kwia^{1} ʔúʔ^{12}. The following set differs by tone in the **Tl** and **Pa** forms from those of this set but is no doubt related to this and the immediately preceding set.

156 ***kʷe** *rabbit* **Oj** lo^{31} kwa^{3} **U** a^{2}lo^{1} kua^{4} **Tl** lo^{2}kwa^{34} *rabbit-like animal* **Tp** lo^{21}kua^{32} **Pa** la^{1}kwɨ^{3} **VN** lo kyu **Oz** lo kya. Cf. the two preceding sets.

157 ***kʷeᴸ** [1] *long (inan.)* ***kʷe·ŋᴸ** [2] *long (an.)* **Oj** kwo^{2} [1] kwą^{2} [2]

U kue^{3} [1] kụẹ^{43} [2] (3 expected) Tl kwo^{3} [1] kwọ^{3} [2] S kwo^{2} [1] Qe ku [1] Tp ku^{2} [1] Pa kuw^{2} [1] VN ko [1] kọ [2] Oz kyo [1] Ll kwa·^{3} [1] kwa·hn^{23} [2] (3 expected without h) A kwö [1] Le kwe [1] Qi kwah^{23} [1] Co kwe·^{2} [1].

158 ***kʷé·LH** *arm* Oj mo^{2} kwo^{2}a^{2} U dʸa^{1}kue^{43} *wing* Ch mo kwos M kwo S kwo co Qe ku Tp mɨ^{2}ku^{32} za^{2} Pa kow^{32} za^{2} VN ko Oz sa kyo Ll kwa·h^{2} A kwö Le kwe Qi kwah^{2} (43 expected) Co mɨ^{2}kwé·^{21} *elbow.*

159 ***kʷe·ʔH** *gourd dipper* Oj ho^{1} kwaʔ^{1} U a^{2}kuaʔ^{1} (32 expected) Tl kwaʔ^{1} Ch kwa (ʔ expected) S kwaʔ^{32} Qe kwaʔ Tp nɨ^{1}kuaʔ^{31} Pa kwɨʔ^{1} VN koʔ Oz wa kyaʔ Ll kwa·ʔ^{2} A kwöʔ Le kweʔ Qi kwahʔ^{42}.

160 ***kʷé·ʔH** *bark, peeling* U o^{1}-kuaʔ^{2} Tl kwáʔ^{1} S kwáʔ^{1} Tp kuáʔ^{1} Pa ci^{1}kwúʔ^{1} VN koʔ Oz sa kyaʔ Ll kwaʔ^{2} A kwöʔ Le kwéʔ^{1}. Cf. *kʷá·ʔH *case.*

161 ***kʷa·ʔL** *bald* U kuaʔ^{3} tʸi^{2} Tl kwaʔ^{4} S ca kwaʔ^{32} ci (2 expected) Tp kuaʔ^{2} Pa kuʔ^{2} VN za kwaʔ Oz ǰa kwaʔ Ll kwo·ʔ^{3} Le kwa·ʔ^{3} Qi kwohʔ^{23} Co kwó·ʔ^{12}.

162 ***kʷa·ʔL** *gourd for carrying water* Ll mɨ^{31}kwo·ʔ^{3} Co kwó·ʔ^{12}.

163 ***kʷá·ʔH** *case* Oj kwoʔ^{1} *peeling, pod* (reflects short vowel) Ch kwaʔ *pod* S ci kwoʔ *shell* (reflects short vowel) Qe kwaʔ heuʔ *armadillo shell* Oz mɨ kyąʔ sɨ kyaʔ *green beans* Ll kwoʔ^{2} *pod.* The following forms are probably part of this set: U o^{1}kuaʔ^{2} *conch* Ch ci kwaʔ *conch* S ci kwa haʔ *sea conch* (reflects short vowel; final ʔ expected) Pa háʔ^{2} kwúʔ^{1} si^{2} *snail, clam.* This set may be related to *kʷé·ʔH *bark, peeling;* all but the Ll form could be accommodated in that set and the Pa and Oz forms would fit better there.

164 ***kʷi̧·** or ***kʷi̧·L** *button* Oj mɨ^{31} či^{1}kwi̧^{2} U ụ^{4}kụ^{32} (3 expected) Tl mág^{3} ci^{2}kwụ^{3}.

165 ***kʷi̧·ʔ** or ***kʷi̧·ʔ** *pull* Oj kwi̧ʔ^{31} ʔni^{2} U kụʔ^{2} Tl kwúʔ^{4} S ma la kwụʔ co.

166 ***kʷi̧ʔ** [1] ***kʷą·ʔ** [2] *Oaxaca* U nei^{2} kụąʔ^{3} [2] Tl ni^{2}kwąʔ^{2} [2] S nyi kwąʔ [2] Tp i^{1}kui̧ʔ^{2} [1] Oz na kwi̧ʔ [1] (i̧ expected) Ll i^{2}kwi̧ʔ^{3} [1] (i̧ expected) or i^{2}kwọ·ʔ^{3} [2] Lc ñi kwi̧ʔ [1] (i̧ expected) Pe ñi kwi̧ʔ [1] (i̧ expected) To i kwọʔ [2] RC he kwi̧ʔ [1] (i̧ expected) A i kwi̧ʔ [1] (i̧ expected) Le ši kwi̧ʔ [1] (i̧ expected) Qi ni^{2}kwi̧ʔ^{1} [1] Co ni^{2}kwi̧ʔ^{1} [1].

167 ***kʷi̧·H** *wrinkles* P kwi̧y^{1} Ll kwi̧·^{2}.

168 ***kʷi̧·LH** *flee, run* Oj kwa^{2} ʔni^{2} kwɨ^{2}ʔi^{2} *(imper.)* (nasalization expected) U kụ^{3} Tl kwụ́^{4} (reflects accented syllable) S ma ka kwụ co Tp kui̧g^{32} za^{2} Pa kwi̧y^{32} za^{2} Ll kwi̧·^{23} (does not match tone

correspondence) kwɨ·^{32} *(plural subj.)* (reflects accented syllable; this alternant suggests there may have been an alternation in this stem between *ɨ· and *ɨ·) **Le** kwɨ·^{4} (does not match tone correspondence) **Qi** kwɨh^{4} ca^{3} **Co** kwɨ·r^{1} (2 expected).

169 ***kʷɨ·^{LH}** *wax, resin* **Oj** haʔ^{3} hmo^{2} kwɨ^{2} *bee* **U** kɨ^{43} **Tl** kwɨ́^{4} **Tp** kuɨg^{32} **Pa** kwɨy^{32} **Ll** kwɨ·h^{23} (2 and ɨ· expected) **Ql** kwɨh^{43} **Co** kwɨ·^{21}.

170 ***kʷęʔ** [1] ***kʷę́·ŋ** [2] *be hungry* **Oj** ʔo^{31}kwɨ^{3} [2] (the **Oj** and **Tl** forms reflect *ɨ) **U** kɨęʔ^{43} [1] **Tl** kwęg^{34} [2] **Ch** ka ma nyi kǫ [2] (perhaps form should have been recorded as kwǫ) **S** nyi kwɨ na *(first person singular)* [2] **Qe** ma i kɨʔ [1] **Tp** i^{1}kǫ́ʔ^{32} za^{2} [1] **Pa** li^{3}i^{1}kwąʔ^{3} [1] kǫ́^{32} [2] **Ll** kwęʔ^{23} [1] kwę·hn^{2}nu^{3} *(second person)* [2] **Le** kwęʔ [1] kwęy *(first person singular)* [2].

171 ***kʷą·^{L}** *shirt, clothing* **Oj** si^{1}kwɨ·^{2}a^{2} (ǫ expected) **U** a^{2}kɨęʔ^{3} **Tl** kwɨ^{3}-ceg **Ch** ʔmɨ kwǫs **VN** kwą **Ll** kwǫ·^{3} **Le** kwą.

172 ***kʷą·** *Petlapa, a Chinantec village* **Ll** moʔ^{3} kwǫ·^{2} **Le** maʔ kwą.

173 ***kʷą·ŋ** *grow* **Oj** kwą^{23} **U** si^{3}-kɨęʔ^{3} **Tl** kwɨ́^{2} **S** ma ka kwǫ **Tp** zɨ^{2}kǫ́^{3} za^{2} **Pa** za^{2}kǫ́^{1} **Ll** sɨ^{3}kwą·hn^{23}.

174 ***kʷą·ʔ^{LH}** *hill* **Oj** kwąʔ^{2} **U** kɨąʔ^{3} **Tl** kwą́ʔ^{4} (accent not expected) **Ch** kwąʔ *ascent* **S** ka^{2}-kwǫʔ^{1} (ą and 32 expected) **Qe** kwąʔ **Tp** zɨ^{1}kǫʔ^{2} **Pa** kǫʔ^{32} **VN** kwąʔ **Oz** či kǫʔ **Ll** kwǫ·ʔ^{3} **Le** kwąʔ **Qi** kwǫhʔ^{4} **Co** kwǫ́·ʔ^{12} (2 with a short vowel and no accent expected).

*ʔ

175 ***ʔɨ·^{LH}** [1] *count (inan. obj.)* ~ ***ʔl** [2] *count (inan. obj.) (frequently imper.)* ***ʔɨŋ** [3] ~ ***ʔiŋ** [4] *count (an. obj.)* **Oj** a^{4} ʔɨ^{2} ʔni^{2} *(neg. imper.)* [1] ʔi^{3} ʔni^{2} [2] **U** si^{2}ʔeg^{3} [1] **Tl** ʔág^{4} [1] (eg expected) ʔí^{4} *read* [2] **Ch** teg ʔegs [1] ʔi [2] **M** de ʔɨ [1] **S** na ʔɨ [1] ʔɨ [3] **Tp** ʔɨ^{32} za^{2} [1] **Pa** ʔɨw^{32} [1] ʔíw^{2} [2] ʔə^{32} [3] **VN** ʔɨ *(first person singular)* [1] ʔei [2] (e expected) **Oz** ʔɨ [1] ʔɨ [4] **Ll** ʔɨ^{3} *count, read aloud* [1] ʔih^{3} [2] ʔɨ·n^{23} [3] ʔi·n^{23} [4] (length not expected in the latter two forms) **Le** ʔɨ^{3} [1] ʔi^{3} [2] **Qi** ɨ^{4}ʔih^{24} ca^{3} [2] (h not expected) **Co** hmi^{2}ʔír^{1} [2].

176 ***ʔɨ·^{HL}** *diaper* **Oj** sɨ^{1}ʔɨ^{2} **U** a^{2}-ʔag^{23} **Tl** ʔág^{4} **S** ci ʔa **Ll** ʔɨ·h^{2} (23 but no h expected) **Lt** la ʔɨʔ (final ʔ not expected).

177 ***ʔɨ·^{HLH}** [1] *late, delayed (inan.)* ***ʔɨ·ŋ^{HLH}** [2] *late, delayed (an.)* **U** ʔag^{34} [1] (1 expected) **Tp** rə^{2}ʔɨ^{32} za^{2} [2] (21 expected) **Pa** ʔa^{1} [2] **Ll** ʔɨ·^{232} [1] ʔɨ·n^{232} [2] **Co** lɨ^{2}ʔɨ·iŋ^{12} [2].

178 ***ʔɨ·** *bear fruit* **Oj** ka^{3}ʔɨ^{3} **U** ʔag^{3} **Tl** ʔág^{2} **S** ʔɨ **Qe** ma ʔai **Tp** ʔag^{32} **Pa** ʔay^{32} **Ll** ʔɨ·^{3} **Lt** ʔɨ **Qi** ʔih^{4} **Co** ʔɨ·^{12}.

179 ***ʔɨ·** [1] ***ʔi·** [2] *think* **U** ko^{3}ʔei^{23} cei^{3} *a thought* [2] **Tl** ʔęy^{12} *believe* [2] (reflects syllable with final *ŋ) **Ch** ti ʔeg cegs [1] (**Ch** through **VN** [1] forms reflect a short vowel) **M** ʔɨ ci [1] **Tp** ʔɨ^{32} zɨ́^{32} za^{2} *worry* [1] **Pa** ʔɨw^{32} zɨ́w^{32} za^{2} [1] **VN** ʔɨ zia *(first person singular)* [1] ʔei ʔao *(second person)* [2] **Oz** ʔi [2] **Qi** ʔɨh^{3} ci^{2} ca^{34} [1] **Co** ʔɨ́^{12} dí·r^{21} [1].

180 ***ʔɨ́·^{LH}** [1]~***ʔí·^{LH}** [2] *hang (intr. inan.)* ***ʔɨ·^{LH}** [3] *hang (tr. inan.)* ***ʔí·^{L}** [4] *hang (tr. inan. imper.)* **Oj** a^{4} ʔɨ^{2} ʔni^{2} *(neg. imper.)* [3] ʔi^{3} ʔni^{2} [4] **U** d^{y}a^{1}ʔei^{43} [2] si^{2}ʔag^{3} [3] **Tl** ʔag^{34} [3] ʔái(ʔ)^{2} [4] (tone 3 expected) **Ch** ʔay [4] **S** na ʔɨ [1] kwa ʔi [4] **Qe** ʔai [4] **Tp** ʔag^{32} za^{2} [3] **Pa** ʔey^{32} *(pres.)* [2] ʔɨ́y^{2} *(past)* [1] (32 expected) ʔay^{32} [3] ʔéy^{2} *(second person past)* [4] **Ll** rɨ^{3}ʔɨh^{2} [1] ʔɨ·^{3} [3] ʔi·h^{3} [4] **Le** ʔɨ·^{3} [3] ʔí·^{3} [4] **Qi** ʔih^{3} [2] (43 expected) ʔɨh^{3} ca^{3} [3] (4 expected) **Co** ʔɨʔr^{2} [3] (final ʔ not expected, but the checked syllable accounts for the short vowel).

181 ***ʔí·ŋ^{LH}** [1]~***ʔí·ŋ^{LH}** [2] *pull* **Tl** ʔág^{4} *pull out* [1] (does not reflect final *ŋ) **Pa** ʔá^{32} [1] (accent not expected in either **Pa** form) ʔéy^{32} [2] (reflects a syllable without final *ŋ) **Ll** ʔɨ·n^{32} [1] ʔi·n^{3} *(imper.)* [2] (reflects a syllable without accent) **Le** ʔɨ·y^{32} [1] ʔi·y^{3} [2] (reflects a syllable without accent) **Co** ʔə·iŋ^{21} [1] (ɨ· and an accent expected).

182 ***ʔí·ŋ^{LH}** *jump up* **Tp** ʔɨ̨^{32} **Ll** ka^{23}la^{23}ʔɨ·hn^{2}.

183 ***ʔɨ·ʔ^{H}** *topil, a municipal messenger* **U** si^{3}maiʔ^{2} ʔagʔ^{1} (eg and 32 expected) **Tl** ʔegʔ^{1} **S** ca ʔɨ̨ʔ (nasalization not expected) **Tp** ciʔ^{2} ʔɨʔ^{31} **Pa** ciʔ^{2} ʔɨwʔ **Ll** ʔɨ·ʔ^{2} **Lt** ʔɨʔ **Qi** ʔɨhʔ^{42} **Co** ʔɨ·ʔ^{21}.

184 ***ʔɨ·ʔ** [1] *pierce, stick (inan. obj.)*~***ʔi·ʔ** [2] *pierce, stick (inan. obj. imper.)* ***ʔɨ·ʔŋ** [3] *pierce, stick (an. obj.)* **Oj** a^{4} ʔɨʔ^{3} ʔni^{2} *(neg. imper.)* [1] ʔiʔ^{3} ʔni^{2} [2] **Tl** ka^{34}ʔág^{2} [1] (final ʔ expected in both **Tl** and **Ch**) **Ch** ʔegs [1] (reflects short vowel) **S** ʔɨʔs [1] **Tp** ʔɨ́ʔ^{32} za^{2} [1] **Pa** ʔɨʔ^{32} [1] ʔey^{32} *(second person past)* [2] ʔəʔ^{32} [3] **Ll** ʔɨ·ʔ^{32} [1] ʔi·ʔ^{3} [2] ʔɨʔn^{32} [3] (long vowel expected) **Le** ʔɨʔ^{32} [1] ʔiʔ^{3} [2] (long vowels expected) **Qi** ʔɨʔ^{3} ca^{3} [1] (ɨh expected) **Co** ʔɨʔ [1] ʔiʔ [2] (long vowels expected).

185 ***ʔə^{H}** *body* **Oj** ʔə^{1}a^{2} **U** ʔe^{32} (tone suggests a long vowel) **Tl** ʔə^{42} ceg^{3} (42 occurs in **Tl** obligatorily possessed nouns rather than the more common 2) **Ch** lo ʔəs *skin* **Ll** la^{3}ʔe^{2} *skin (leather-body)* **A** lo ʔę(n) *skin.*

186 ***ʔə** *sing* **Oj** ʔə^{1} ʔni^{2} *(imper.)* **Tl** ʔə́^{2} **Ch** ma di ʔəs **S** ʔɨe co **Qe** ʔə **Tp** ʔə^{32} za^{2} **Pa** ʔɨw^{32} za^{2} **VN** ma ka ʔe za **Ll** ʔe^{23} **Le** za^{3}ʔe^{4} *cantor* **Qi** ʔə^{4} ca^{3} **Co** ʔər^{2}.

187 ***ʔə** *chicken (possessed form)* **Qi** ʔə^{4} ca^{3} **Co** ʔə́r^{1}.

188 ***ʔəŋ^{HL}** *frighten, scare off* **U** si^{2}ʔą^{23} (ą and tone 3 expected;

may not be cognate) **Tl** ʔę́^{2} (reflects accented syllable) **Pa** ʔá^{2} (accent not expected) **Ll** ʔən^{23} **Le** ʔa^{4} (reflects a syllable without final *ŋ) **Co** hmɨ ʔəʔ (reflects a syllable with final *ʔ but not final *ŋ).

189 ***ʔə́·^{LH}** *kick* **U** ʔe^{43} **Tl** ʔə́^{4} *(inan. obj.)* ʔę́^{4} *(an. obj.)* (reflects *ʔə́·ŋ) **Tp** ʔə^{32}za^{2} (reflects short vowel; cf. following set) **Pa** ʔɨ^{32} **Co** ʔə́·r^{12} (21 expected). The following set probably belongs with this one: *ʔə́^{LH} *step on* **Pa** ʔɨw^{32} *(inan. obj.)* ʔa^{32} *(an. obj.)* (reflects *ʔə́ŋ) **Ll** ʔe·^{23} (e and 32 expected; length here, as the ʔ in **Qi, Y,** and **Co,** may be a marker of (di)transitivity) **Le** ʔe·^{4} (cf. note on the **Ll** form) **Qi** ʔəʔ^{3} **Y** ʔəʔ naʔ *(first pl. incl.)* **Co** ʔəʔ.

190 ***ʔə·ŋ^{HL}** *scarce* **Pa** ʔə^{2} **Ll** ʔo^·n^{23} **Co** ʔə·iŋ^{12} (accent expected).

191 ***ʔə·ʔ** *spit* **Pa** ʔɨwʔ^{31} *saliva* **Ll** ʔo^·ʔ^{32} **Le** ʔo·ʔ^{32}. This set may be related to *ʔeʔ *saliva.*

192 ***ʔí^{LH}** *tortilla* **Oj** ha^{1}ʔi^{3} **U** a^{2}ʔei^{43} **Tl** ʔí^{3} **S** ʔi^{23} **Tp** nɨ^{1}ʔí^{32} **Pa** ʔé^{32} (i expected) **VN** ʔe **Oz** wa ʔe **Ll** ʔɨh^{2} (i expected in **Ll** through **A) Lc** ʔɨ **Pe** ʔi **To** ʔɨ **RC** ʔɨ **A** ʔɨ **Qi** ʔi^{3} **Co** ʔí·^{21} (length not expected).

193 ***ʔí^{H}** *take care* **Oj** hmo^{31} ʔni^{2} ʔi^{1} **Ch** hmos ʔi **S** hmo wa ʔi **Tp** hmo^{32} za^{2} ʔí^{1} **Pa** hmo za ʔí^{1} **Le** ʔí^{3} (tone 1 expected) **Co** hme·^{1} ʔí^{1} ʔwəʔ^{2}.

194 ***ʔí^{H}** [1]~***ʔí^{L}** [2] *enter* **U** ʔei^{4} [2] **Tl** ʔí^{4} (1 or 3 expected) **S** ma^{2}ʔi^{32} (12 or 23 expected) **Qe** ʔai (reflects long vowel) **Tp** ʔí^{2} za^{2} [2] **Pa** ʔí^{1} *(present, future)* [2] ʔí^{2} *(past)* [1] **Ll** ʔih^{2} *(past)* [1] rɨ^{23}ʔih^{3} *(future)* [2] **Qi** ka^{3}ʔi^{2} [1] (does not reflect accented syllable).

195 ***ʔi·^{HLH}** *where original timber has been cut* **Pa** nuw^{2} ʔey^{1} **Ll** he^{2} ʔi·^{232}.

196 ***ʔí·^{L}** *accede* **Pa** ʔé^{2} həw^{1} (reflects syllable closed by *ŋ) **Ll** ka^{23}-ʔi·h^{3} hu·h^{2}.

197 ***ʔí·^{L}** *that, those (an.)* **U** ʔe^{4}i^{3} (ei expected) **Tl** ʔę́y^{4} (3 expected; reflects syllable closed by *ŋ) **Tp** ʔéi^{2} **Pa** ʔéy^{2} **Ll** ʔih^{3} (the **Ll** and **Co** forms reflect a short vowel) **Co** ʔí^{1} do (12 expected; reflects a syllable closed by *ŋ).

198 ***ʔí·^{LH}** *missing, lacking* **U** ʔei^{43} **Tl** ʔáy^{4} **Pa** ʔey^{32} **Ll** ʔi·h^{2} **Le** ruʔ^{4}ʔi·^{34} (accent and tone 2 expected).

199 ***ʔi·ʔ^{LH}** [1] ***ʔí·ʔ^{HL}** [2] *weight, measure, peso* **Oj** ʔiʔ^{2} [1] **U** ʔeiʔ^{43} [1] (reflects accented syllable) **Tl** ʔayʔ^{4} [1] **S** ka^{2}ʔeiʔ^{32} [1] **Qe** ʔaiʔ [1] **Tp** ʔéiʔ^{3} [2] **Pa** ʔéʔ^{3} [2] (ey or i expected) **Ll** ʔiʔ^{23} [2] **Le** ʔí·ʔ^{4} [2] **Qi** ʔihʔ^{34} [2] **Y** ʔiʔ [2] **Co** ʔíʔ^{12} [2] (2 is probably the expected reflex). The following set is homophonous with the preceding one and probably is a part of the same set:

200 ***ʔi·ʔ^{LH}** [1] ***ʔí·ʔ^{HL}** [2] *command* **Oj** hmo^{31} ʔni^{2} ʔiʔ^{2} [1] **U** hu̯ę^{3} ʔeiʔ^{43} [1] (reflects accented syllable) **S** ma ka hmo ʔeʔ [1] (reflects short vowel; ei expected) **Tp** ʔéiʔ^{3} [2] **Ll** ǰi^{3} ʔiʔ^{23} [2]. Cf. *ʔi·ʔ^{LH} *weight, measure, peso.*

201 ***ʔí·ʔŋ^{LH}** *accept* **Ll** ʔi·ʔn^{32} **Co** ʔiŋʔ^{2}.

202 ***ʔe** [1] *teach (intr.)* ***ʔeŋ** [2] *show (tr. an.)* ***ʔeʔ** [3] *teach (ditr. inan.)* **Oj** ʔe^{1} ʔni^{2} *(imper.)* [1] **U** ʔe^{23} [1] **Tl** ʔé^{2} [1] **Qe** ʔe [1] **Tp** ʔə [1] ʔɨ^{32} za^{2} [2] **Pa** ʔe^{32} [1] ʔa^{32} [2] ʔéʔ^{32} [3] **Ll** ʔe^{23} [1] ʔen^{32} [2] **A** za ʔə *teacher* [1] **Le** ʔe^{4} [1] ʔey^{32} [2] **Qi** ʔeʔ^{3} ca^{3} [3] **Co** ʔer^{2} [1]. In addition, **Ll** ʔe·^{23} *teach, show (ditr. inan.)* reflects *ʔe· and **Co** ʔe·iŋ^{12} *show (tr. an.)* reflects *ʔe·ŋ.

203 ***ʔé^{L}** [1] ***ʔé·ŋ^{L}** [2] *shell corn* **Oj** ʔe^{3} ʔni^{2} *(imper.)* [1] **U** si^{2}ʔe^{5} hnia^{4} *(first person singular)* [1] (4 expected) **Tl** ʔé^{3} [1] ʔę^{3} [2] **Ch** ʔe [1] (**Ch** and **S** reflect a long vowel) **S** ʔe [1] **Qe** ʔe [1] **Tp** ʔə^{2}za^{2} [1] **Pa** ʔé^{2} [1] ʔáʔ^{2} *pick* [2] (reflects *ʔ rather than length) **Ll** ʔe^{32} *pick* [1] ʔe·n^{32} *shell* [2] (3 and h expected in both forms) **A** ʔen [2] **Le** ʔe^{32} *pick* [1] (ʔé^{3} expected) ʔey^{32} [2] (ʔé·y^{3} expected) **Qi** ʔe^{34} ca^{3} [1] (reflects an unaccented syllable) **Co** ʔe [1] ʔé·ŋ^{2} *pick* [2].

204 ***ʔeʔ** *saliva* **Oj** hmɨ^{2}ʔeʔ^{1}a^{2} **Tl** meg^{3}ʔé^{1} **Ch** hmai ʔɨeʔ **M** mai ʔaʔ or mai ʔaiʔ **S** mi ʔeʔ **Tp** hmɨ^{1}ʔəʔ^{32} **Pa** hmɨ ʔɨwʔ^{31} (e expected; this form may belong to *ʔə·ʔ *spit* set) **VN** hmɨ ʔaiʔ **Oz** hmɨ ʔeʔ **Ll** mɨ^{23}ʔeʔ^{2} **To** mɨ ʔəʔ te *(first person plural)* **A** mɨ ʔəʔ **Qi** hmɨh^{23} ʔeʔ^{2} **Co** hmɨ^{2} ʔe·ʔr^{2} (short vowel expected).

205 ***ʔe·** [1] ***ʔe·ʔ** [2] *what?, which? (inan.)* **Oj** ʔe^{2} [1] **U** ʔęʔ^{4} [2] (nasalization not expected) **Tl** ʔéʔ^{3} [2] **Ch** ʔe [1] **M** ʔeʔ [2] **S** ʔe [1] or ʔeʔ [2] **Tp** ʔe^{2} [1] **Pa** ʔe^{2} [1] **VN** ʔe [1] **Oz** ʔe [1] **Ll** ʔe·^{2} [1] **A** ʔa wa ʔno [1] **Le** ʔe^{2} [1] **Qi** ʔeh^{242} [1] **Co** ʔe^{1} [1] (long vowel expected).

206 ***ʔe·** *tumpline* **U** a^{2}ʔe^{32} **Tl** ʔə́^{4} **Ch** ʔa ɨe (e expected) **S** nyu ʔa **Tp** ci^{1}ʔag^{31} **Pa** ʔeʔ^{31} (final ʔ not expected) **Ll** ʔe·^{32} *flexible handles* **Lc** mo ʔe **Pe** ba mɨ ʔe **Le** ñiʔ^{42} ʔɨ·^{34} (e· expected) **Qi** ni^{2}ʔeh^{41} **Co** ni^{2}ʔé·^{1}.

207 ***ʔe·ʔ** *belch* **Tl** ʔę́ʔ^{4} (reflects a final *ŋ) **Tp** ʔə́ʔ^{2} za^{2} **Pa** ʔéʔ^{2} **Ll** ʔe·ʔ^{32} **Le** ʔe·ʔ^{32}.

208 ***ʔu^{L}** *chisel* **U** a^{2}ñi^{23} ma^{3}ʔeu^{3} **Tp** nɨ^{1} ŋí^{1} ʔɨ^{2} **Pa** ŋyí^{1} ʔɨ^{32} (2 expected) **Ll** ñih^{2} ʔu^{3} **Co** ʔú^{12} (reflects accented syllable).

209 ***ʔu^{LH}** *glass, mirror* **Oj** ʔu^{1} (2 expected) **U** a^{2}ʔeu^{3} **Tl** ʔú^{4} **S** ʔu^{32} **Tp** nɨ^{1}ʔɨ^{2} (32 expected) **Pa** ʔɨ^{32} **VN** ʔu **Ll** ʔu^{3} **Le** ʔu^{3} **Qi** ʔu^{4}.

210 ***ʔu^{HLH}** *staff* **U** na^{2}ʔma^{3} ʔeu^{1} **Tp** ʔma^{2}ʔɨʔ^{31} (vowel quality reflects an open syllable) **Pa** ʔma^{2} ʔɨ^{31} (1 expected) **Ll** ʔmo^{3} ʔu·^{232} (short vowel expected) **Co** ʔma ʔú^{1} (12 expected).

211 ***ʔúL** *wide* **Oj** ʔu3 **U** ʔeu4 **Tl** ʔú3 **M** ʔeu **S** ʔu23 **Tp** ʔɨ̃2 **Pa** ʔɨ̃2 **VN** ʔu **Oz** ʔu **Ll** ʔuh3 **Le** ʔú3 **Qi** ʔu24 **Co** ʔú12.

212 ***ʔúLH** *casserole* **Oj** ho1wɨ2 ʔu2 (3 expected) **U** a2ʔeu43 **Tl** ʔú3 **S** ʔu23 **Tp** nɨ1ʔɨ̃32 **Pa** ʔɨ̃32 **Oz** wa ʔu **Ll** ʔuh2 **Le** ʔú2 **Qi** ʔu3 **Co** ʔú21.

213 ***ʔúʔLH** *fingernail* **Oj** ʔu1 sya1 kwo2a2 (final ʔ with 4 expected) **U** si1ʔauʔ43 **Tl** ciʔúʔ4 ceg **Ch** ci ʔuʔs or ci ʔawʔs **M** maʔauʔ za **S** θi ʔɨeʔs or ʔëʔ co **Qe** ʔeuʔ **Tp** ci1ʔúʔ32 za2 **Pa** ci1kwɨ́ʔ ʔowʔ32 **VN** kwaʔ ʔauʔ hna *(first person singular)* **Ll** ʔuʔ2 **To** hwi ʔuʔ **Lt** ʔuʔ **Qi** moh4 ʔuʔ2 (3 expected) **Co** ni1ʔuʔ2.

214 ***ʔu·ʔL** *monkey* **Oj** ca2 ʔuʔ2 **Ch** kwa ʔuʔ **S** kwa1ʔuʔ1 (2 expected) **Ll** kwa2ʔu·ʔ3 **A** kwe ʔuʔ **Lt** kwe ʔuʔ **Qi** kwa3 ʔuhʔ23 **Co** kwia1ʔúʔ12 (long vowel expected).

215 ***ʔú·ʔH** *peach* **Pa** ʔúʔ1 **Qi** ʔuhʔ1 **Co** ʔuʔ1 (accent expected).

216 ***ʔaH** *be in (of liquids)* **Oj** ʔa1 **U** si2ʔa1 *enter (of liquids)* (2 expected) **Tl** ʔa2 **S** ʔa **Tp** ʔa21 **Pa** ʔa1 **Ll** ʔo2 **Le** ʔa **Qi** sɨ ʔoh2 (h not expected) **Co** ʔá1 (reflects an accented syllable).

217 ***ʔaH** [1] ***ʔlH** [2] *question marker* **Tl** ʔi2 [2] ʔa [1] **Pa** ʔi1 *positive question marker* [2] **Ll** ʔa2 [1] **Lc** ha [1] (ʔ rather than h expected in **Lc** and **Ql** forms) **Qi** ho1 *negative question marker* [1] (reflects accented syllable).

218 ***ʔaŋLH** *cross, traverse* **U** si2ʔą3 **Tl** ʔą3 (tone 4 with accent expected) **Tp** ʔą32 za2 **Pa** ʔa32 **Ll** ʔən3 **Le** ʔay3 **Co** ʔa (reflects syllable without *ŋ).

219 ***ʔa·H** *mouth* **Oj** ʔo31a2 **U** ʔo32 **Tl** ʔo42 ceg3 (4 expected) **S** ʔo3co2 **Qe** ʔau **Tp** mi2ʔo21 za2 **Pa** ʔaw1 **VN** ʔoa hna *(first person singular)* **Oz** wo ʔo hni *(first person singular)* **Ll** ʔo·2 **Le** ʔa·2 **Qi** ʔoh2 **Co** mɨ ʔo·1. The following forms probably belong to the same set: *ʔa·(ʔ)H *door* **Oj** ʔoʔ31 **U** o2ʔnei32 **Ch** ʔo kwa nyu **S** ʔo ta kye *window* **Tp** ʔo21 ʔné21 **VN** ʔoaʔ **Ll** ʔo·ʔ2 ʔñö31 **Qi** ʔohʔ2 **Co** ʔó·21 (1 expected). This set is probably related to one or both of the two following sets.

220 ***ʔa·L** [1] ***ʔa·ʔL** [2] *hollow, make a hole* **U** ʔo3to3 *hollow* [1] **Ch** ʔo to *hollow* [1] **S** ʔo to *hole* [1] **Pa** ʔə̃ʔ2 za2 *make a hole* [2] (a expected; reflects an accented syllable) **VN** ʔoʔ *broken* [2] (oa expected) **Ll** ʔo·32 *make a hole* [1] (3 expected) ku3ʔo·ʔ3 *hollow* [2] **Le** ko ʔaʔ *hollow* [2] **Qi** ʔo34 ca3 *make a hole* [1] ʔoʔ2 *deep* [2] (oh expected in both forms and 23 in the second one). This set is probably related to the immediately preceding one.

221 ***ʔa·(ʔ)LH** *cry* **Oj** ʔoʔ31 ʔni2 *(imper.)* (tone does not match) **U** ʔoʔ5 (tone does not match; the

vowels of the U, Tl, and S forms, at least, reflect an open syllable) **Tl** ʔoʔ^{4} ceg^{3} **S** ti ʔoʔ co *shout* **Qe** kwa ʔau **Tp** ʔo^{32} za^{2} **Pa** ʔo^{32} **VN** ʔoaʔ hna *(first person singular)* **Ll** ʔo·ʔ^{32} (reflects an accented syllable) ʔo·^{23} *cry (animal)* **Qi** ʔoh^{4} ca^{3} **Co** ʔo·r^{2}. This set is probably related to the two sets immediately preceding.

222 ***ʔa·L** *herb* **Oj** ʔo^{2} mɨ^{3} **U** ma^{2}-ʔo^{3} **Tl** ʔew^{3} **S** ʔó^{2} (accent not expected) **Pa** moʔ^{31} ʔəw^{2} *leaf* **Ll** ʔo·^{3} *medicine* **Le** ʔa *medicinal herbs* **Qi** ʔoh^{23} **Co** ʔo·^{2}.

223 ***ʔa·** [1] *bury (inan. obj.)* ***ʔa·ŋ** [2] *bury (an. obj.)* **U** si^{2}ʔo^{34} [1] ʔǫ^{34} [2] **Tl** ʔo^{34} [1] **Ch** ma di ʔǫ [2] **S** ma ca ʔǫ [2] **Tp** ʔó^{2} za^{2} *(an. obj.)* [1] **Pa** ʔəw^{2} *(intr.)* [1] ʔúw^{2} [2] **Ll** ʔo·^{32} [1] ʔa·n^{32} [2] **Le** ʔa·^{32} [1] ʔay [2] **Qi** lɨ^{2}sɨ^{2}ʔaih^{242} [2] **Co** ʔó·r^{21} [1].

224 ***ʔa·** [1] ***ʔa·ŋ** [2] ***ʔia·** [3] *pardon, help* **Oj** hma^{1}ʔą^{2} ʔni^{2} *help* [2] **U** ma^{4}ʔǫ^{32} *help* [2] **Tl** ma ʔéw^{3} [1] **Ch** ma ʔǫs [2] **S** ma ʔos [1] **Tp** hme^{2}ʔo^{31} za^{2} *help* [1] **Pa** mi^{2}ʔa^{32} *(intr.)* [1] (reflects short vowel) mi^{2}ʔow^{31} [2] **Ll** mɨ^{2}ʔä·h^{2} *help, pardon* [3] mɨ^{2}ʔa·hn^{2} *thanks* [2] **Qi** mɨh hmɨ ʔah *beg pardon* [3].

225 ***ʔa·** *your heart* **U** ni^{2}ʔoʔ^{43} **Tl** ʔoʔ^{42} **S** ʔoʔ ʔno **Qe** ʔauʔ ʔno (vowel quality of **Qe, Tp,** and **Pa** forms reflects long vowel but not a closed syllable) **Tp** ʔauʔ^{2} **Pa** ʔowʔ^{32} ʔni^{2} (reflects *a·ŋ) **VN** ʔao **Ll** ʔa·hn^{2} **Lc** ʔo ʔni (an expected) **Lt** ʔay **Qi** ʔoʔh^{24} **Co** ʔoʔ^{2} (long vowel expected). Most forms are closed by ʔ, which is a marker of second person and not a part of the stem.

226 ***ʔa·** *Lalana, a Chinantec village* **Ll** mɨ^{3} te^{2}ʔo·^{3} **Lc** mɨ ta ʔo **Le** mɨ tya ʔa.

227 ***ʔa·** *hen* **Ch** ka ʔo **S** ka ʔo.

228 ***ʔá·H** *rotten, dried out* **U** ʔo^{23} **Tl** gya (reflects *ʔia) **Ch** ma ʔo **Tp** ʔáu^{1} **Pa** ʔə́w^{1} **VN** ma ʔao **Ll** ka^{23}ʔä·^{3} (reflects *ʔia·; 2 with final h expected) **Qi** ʔoh^{1} **Co** ʔó·^{1}.

229 ***ʔiu** [1] *be in (singular inan. subj.)* ***ʔiuŋ** [2] *be in (singular an. subj.)* **U** ʔei^{1} [1] **Tl** gi [1] gyǫ^{3} [2] **Ch** maɨ ʔyu lo si *necklace* [1] **S** maɨ ʔu lə co *necklace* [1] (reflects *u) **Tp** ʔi^{21} [1] **Pa** ʔyu^{1} [1] ʔyúw^{1} [2] **VN** maɨ ʔyu lauʔ *necklace* [1] **Ll** ʔyö^{2} [1] ʔyuhn^{2} [2] **Pe** ʔö [1] ʔön [2] **Qi** ʔyü^{1} [1] ʔyui [2] **Co** ʔiő·^{21} [1] (length not expected).

230 ***ʔiu·ʔ** *be afraid* **Ll** ʔyö·ʔ^{23} **To** ʔöʔ.

231 ***ʔia·L** *early in the morning* **Oj** ma^{4} tɨ^{4} ʔye^{2} *breakfast* **U** to^{5}ʔie^{3} **Tl** meg^{2} gya^{4}ʔew^{3} *early* (the **Tl, S,** and **Qe** forms reflect *ʔa·) **S** ʔo nei **Qe** ʔo nai **Tp** tə^{2} ʔo^{3}ʔiog^{2} **Pa** tu^{3}ʔew^{2} **VN** ʔo **Ll** i^{23}ʔä·^{3} **To** ñi ʔa ta **Qi** ʔah^{23} **Co** la^{2}ʔe·^{2}. This set may be related to *iá.HL *tomorrow.*

232 ***ʔia·LH** [1] *have, take care of (inan. obj.)* ***ʔiá·ŋLH** [2] *have, take care of (an. obj.)* **U** ʔie^{3} *take care of*

[1] **Pa** ʔyo^{32} *have* [1] ʔyow^{32} [2] **Ll** ʔä·^{3} [1] ʔä·n^{32} [2] **Le** ʔe·^{4} [1] (tone 3 expected) ʔe·y^{32} [2] **Qi** ʔoh^{4} ca^{3} *have* [1].

233 ***ʔla·** *star* **Ll** li^{23}ʔä·hn^{2} (reflects *ia·ŋ) **Lc** nö ʔa **Pe** ni ʔa **To** ni ʔa **RC** nö ʔa **A** nö ʔa **Le** ñu ʔe.

234 ***ʔiá·HL** [1] ***ʔa·L** [2] *tomorrow* **Oj** ʔye^{4} [1] **U** ʔie^{34} [1] **Tl** ca^{4}ʔew^{3} [2] meg^{2} gya^{34} ʔéw^{2} *early in the morning* (segments fit [2] but the tone fits [1]) **Ch** ca ʔo [2] **M** ca ʔo [2] **S** ca ʔo [2] **Tp** ʔióg^{3} [1] (accent not expected) **Pa** ʔá^{3} [2] (reflex of long vowel expected but no accent; tone fits [1]) **VN** ʔi ʔo [1] or [2] **Oz** ʔö [1] **Ll** ʔä·h^{23} [1] **Lc** me ʔa [1] **RC** me ʔa [1] **Le** ʔe·^{4} [1] (accent expected) **Qi** ca^{3} ʔoh^{34} [2] (tone of **Ql** and **Co** reflects short vowel) **Co** de^{2}ʔo^{12} [2] (long vowel expected). This set may be related to *ʔia·L *early in the morning.*

235 ***ʔi̯** [1] ***ʔu̯** [2] ***ʔą** [3] *no* **Oj** hi̯^{2}ʔi̯^{3} [1] **U** a^{5}ʔą^{1} [3] **Tl** ʔęg^{1} [1] **Ch** hą ʔą [3] **Tp** hą^{2}ʔǫ^{21} [2] **Oz** ʔa ʔą [3] **Ll** hi̯ ʔi̯ [1] **Qi** ʔu̯^{34} or ^{24} [2] **Co** ʔu̯^{1} [2].

236 ***ʔi̯·L** *thief* **Oj** ca^{2} ʔi̯^{2} **U** cie^{3} ʔąg^{3} or a^{3}ʔąg^{3} **Tl** ca^{3} ʔą́g^{3} (accent not expected) **S** ʔąi̯^{2} **Tp** za^{2} ʔąg^{2} **Pa** za^{2} ʔi̯y^{2} **Ll** za^{3} ʔi̯^{3} (i in **Ll, Lc, To, A,** and **Le** not expected) **Le** za ʔi̯ **Qi** ca^{3} ʔu̯h^{23} **Co** ʔi̯^{2} (nasalization expected).

237 ***ʔi̯·ŋ** [1] ***ʔi̯·ʔŋ** [2] *shoot* **U** ʔąg^{23} [1] **Tl** ʔąg^{4} [2] **Tp** ʔi̯ʔ^{32} za^{2} [2] **Ll** ʔi̯·n^{32} [1] **Qi** ʔu̯h^{212} [1] (neither the **Qi** nor the **Co** form reflects a final *ŋ) **Co** ʔi̯·ʔr^{1} [2].

238 ***ʔi̯·ʔ** [1] *drink* ***ʔi̯·ʔ^{L}** [2] *(imper.)* ***gu·ʔ** [3] *(first sg.)* ***ʔú·ʔ^{L}** [4] *(second)* ***ʔni·ʔ** [5] *(first pl.)* **Oj** ka^{3}ʔi̯^{3}a^{2} [1] (nasalization expected) ʔi̯ʔ^{3} ʔni^{2} [2] a^{4} ʔuʔ^{3} ʔni^{2} *(neg. imper.)* [4] **U** ʔągʔ [1] (all **U** forms reflect a short vowel) ʔąi̯ʔ^{4} *(second person past)* [2] lauʔ^{34} [3] **Tl** ʔę́gʔ^{2} [1] ʔą́yʔ^{3} [2] (i̯ expected) lą́wʔ^{2} [3] ʔáwʔ^{2} [4] níʔ^{2} [5] **Ch** ʔęgʔs [1] ʔęyʔ [2] ʔawʔ [4] **S** ʔi̯ʔs [1] ʔi̯ʔ [2] **Qe** kwa ʔi̯ʔ [1] ʔąi̯ʔ [2] **Tp** ʔi̯ʔ^{2}za^{2} [1] **Pa** ʔi̯ʔ^{2} [1] ʔę́ʔ^{2} [2] (i̯ expected) gi̯ʔ^{32} [3] ʔə́wʔ^{2} [4] ʔnyuʔ^{2} [5] (reflects *iu̯·) **VN** ʔęi̯·ʔ [2] ʔau [4] (final ʔ expected) **Oz** ʔuʔ(n) [3] or [4] **Ll** ʔi̯·ʔ^{32} [1] ʔi̯·ʔ^{3} [2] (reflects unaccented syllable) u·ʔn^{23} [3] ʔuʔn^{3} [4] ʔni·ʔ^{3}ra^{2} [5] **Le** ʔi̯ʔ^{32} [1] ʔi̯ʔ^{3} [2] u·yʔ^{4} [3] ʔúyʔ^{3} [4] ʔi̯ʔ^{32}a^{2} [5] (n rather than initial ʔ expected) **Qi** ʔu̯hʔ^{4} ca^{3} [1] ʔi̯hʔ^{34} [2] duʔh^{2} [3] **Co** ʔi̯ʔr^{2} [1] (long vowel expected). The following set is probably related to this one as a ditransitive form: *ʔi̯·ʔŋ^{LH} *give to drink* **Pa** ʔęʔ^{32} **Ll** ʔi̯·ʔn^{32}.

239 ***ʔi̯^{LH}** *paint, color* **U** o^{1}ʔęi̯^{3} **Tl** ʔi̯^{4} **S** ʔi̯ **Qe** ʔęi̯ (i̯ expected) **Tp** ʔę^{32} **Pa** ʔę^{32} **VN** ʔę **Oz** wa ʔę **Ll** ʔi̯^{3} **Le** ʔi̯^{3} **Qi** ʔi̯^{4} **Co** ʔi̯^{2}.

240 ***ʔi̯·H** *sound, make noise* **U** ʔąi̯^{32} **Tl** ʔąy^{4} **S** ʔę^{12} (reflects accented syllable) **Tp** i^{2}ʔęi̯^{31} (21 expected) **Pa** ʔęy^{31} (1 expected) **Ll** ʔi̯·^{2} **Lt** ʔi̯ **Qi** ʔi̯h^{2} **Co** ʔi̯·^{1}.

241 ***ʔɨ·L** [1] ***ʔɨ·H** [2] *who?* **Oj** ʔɨ^{2} [1] **U** ʔąɨ^{3} [1] **Tl** ʔęy^{3} [1] **Ch** ʔɨ **S** ʔɨ **Qe** ʔęɨ **Tp** ʔęɨ^{2} [1] **Pa** ʔęy^{2} [1] **VN** ʔęɨ **Oz** ʔɨ **Ll** ʔɨ·^{2} [2] **Le** ʔɨ **Qi** ʔɨh^{1} [2] (**Ql** and **Co** forms reflect an accented syllable) **Co** ʔɨ́^{1} [2] (long vowel expected).

242 ***ʔɨ·** *stomach* **U** ma^{3}ʔęɨ^{2} (the **U** and **M** forms reflect a short vowel) **Tl** ʔąy^{42} **M** ʔɨ **S** ʔęs **Qe** ʔąɨs.

243 ***ʔɨ·** *dig* **Oz** ʔɨ **Qi** ʔɨʔ (final ʔ not expected but ɨh is expected) **Co** ʔɨ·r^{1}.

244 ***ʔɨ·** *lose, destroy* **Oj** e^{2} ca^{4} ʔɨ^{2}a^{2} *get lost (motion)* ʔɨ^{31} ʔni^{2} *destroy (imper.)* **U** ma^{4}ʔąɨ^{2} *lose (first person singular past)* si^{2}ʔąɨ^{4} cei^{43} *forget* **Tl** ʔę́y^{4} **Ch** ka ʔɨ *get lost (past)* **S** ŋa ʔɨ **Tp** ʔę́^{2} (accent not expected in **Tp** and **Pa** forms) **Pa** ʔę́^{2} **VN** ʔęɨ **Oz** ma ʔęy *lose (future)* **Ll** ʔɨ·^{23} *steal* ʔɨ·ʔ^{23} zih^{2} *forget* (the latter form may not be cognate) **Le** ʔɨ·^{4} *steal* **Qi** ʔɨ^{2} ci^{2} ca^{34} *forget, lose* **Co** di^{12}ʔí·ŋ^{21} (nasalization expected).

245 ***ʔɨ·LH** *a drunk* **Oj** ca^{2}ʔɨ^{2} **U** a^{3}ʔąɨ^{43} **Tl** ca^{3} ʔę́y^{4} **Ch** ca ʔɨ **S** ca^{2} ʔę^{2} **Tp** za^{2} ʔę^{32} **Pa** za^{2} ʔę^{32} **Le** za ʔɨ **Qi** ca^{3} ʔɨh^{43} **Co** dia^{12} ʔí·ŋ^{21} (nasalization expected).

246 ***ʔɨ·ʔH** [1] ***ʔɨ·ʔHL** [2] *shadow, shade* **Oj** ʔɨʔ^{1} [1] (does not reflect accented syllable) **U** ʔęɨʔ^{2} [1] **Tl** ʔiʔ^{1} [1] (nasalization expected; does not reflect accented syllable) **Ch** ʔi ʔɨʔ **S** nyi ʔɨʔ **Qe** ʔi ʔęɨʔ **Tp** ʔę́ʔ^{1} [1] **Pa** ʔɨ́ʔ^{1} *shade* [1] ʔɨʔ^{2} *shadow* [2] (32 expected if vowel was long) **VN** ʔęɨŋ (final ʔ expected) **Ll** ʔɨʔ^{2} *shade* [1] ʔɨ·ʔn^{23} *shadow* [2] **Qi** ʔɨhʔ^{1} [1] **Co** ʔɨʔ^{1} [1] (accent expected). A form with final *ŋ underlies the **Tl, Ch, Tp,** the second **Ll,** and probably **VN** forms. A form without final *ŋ underlies each of the **Pa** forms. The forms from the other languages are ambiguous.

247 ***ʔu·HL** *chile* **Oj** mɨ^{3}ʔǫ^{2} **U** u^{4}-ʔąu^{23} **Tl** ʔąw^{4} **S** ʔɨ^{2} *chile* ʔu^{2}taʔ^{2} *chile ancho* **Qe** ʔęu **Tp** mɨ^{2}ʔąg^{2} **Pa** ʔəw^{2} **VN** ʔąu **Oz** mɨ ʔu **Ll** ʔu·^{23} **Le** ʔu·^{4} **Qi** ʔuh^{4} **Co** ʔú·^{12}.

248 ***ʔu·ʔH** *fat* **U** ʔęuʔ^{32} **Tl** ʔúʔ^{3} (1 expected) **S** ʔǫʔ co **Qe** ʔęuʔ **Tp** ʔǫʔ^{31} za^{2} **Pa** ʔǫʔ^{31} (1 expected) **Co** ʔu·ʔ^{21}.

249 ***ʔą́·LH** [1] ***ʔą́·LH** [2] *bridge* **Oj** ʔą^{4} [1] (3 expected) **U** a^{2}ma^{3}ʔǫ^{43} *hammock bridge* [2] **Tl** maʔó^{4} [2] (nasalization expected) **S** ʔma^{2}ʔǫ^{2} *vine bridge* [2] **Tp** ci^{1}ma^{2}ʔą́^{32} (archaic) [1] **Pa** ʔma^{2} ʔą́^{32} [1] **VN** ʔą [1] **Oz** ma ʔą [1] **Ll** ʔǫh^{2} [1] **Lt** ʔą **Qi** ʔǫ^{3} [1] **Co** ʔą́·^{21} [2] (vowel reflects [1]).

250 ***ʔą·H** [1] ***ʔą·ʔH** [2] *dark* **U** o^{1}ma^{3}ʔǫ^{32} *soot from smoke* [1] **Tp** hmɨ^{1}ʔǫ^{1} [1] **Oz** na ʔǫ [1] **Ll** li^{3}ʔǫ·^{3} [1] ʔǫ·^{3} *soot from smoke* [1] ʔǫ·ʔ^{3} or ^{2} *muddy, dirty* [2] (2 expected) **To** rɨ ʔǫ [1] **Le** ñu ʔąʔ [2] **Qi** ʔǫhʔ^{42} [2] **Co** mɨʔǫ·^{1} [1].

251 ***ʔą·** *(to) harvest* **Pa** ʔǫ^{32} **Ll** ʔǫ·^{23} **Le** ʔą·^{4}.

252 ***ʔą·ʔ^{H}** *papaya* **Oj** ʔąʔ^{1} **Tp** mɨ^{2}ʔąʔ^{31} **Pa** ʔąʔ^{1} **VN** mɨ ʔǫʔ (oa expected) **Ll** mɨ^{31}ʔǫ·ʔ^{31} (2 expected) **Qi** ʔo·^{2} (nasalization and final ʔ expected in **Qi** and **Co** forms) **Co** ʔo·^{1}.

253 ***ʔlą́ʔ^{L}** *inside* **Tp** ʔŋióʔ^{2} **Ll** ʔęʔ^{3} **Le** ʔęʔ. The **Tp** form probably reflects *ʔŋ. Since in nearly all **Ll** and **Le** forms reflecting *hŋia the nasal is missing, it is possible that this entire set should be labeled *ʔŋiáʔ^{L}.

254 ***ʔlą·^{HL}** *sigh, moan* **U** ʔi̧ę^{23} **Pa** ʔę̨w^{2} (accent not expected) **Ll** ʔę^{23} (long vowel expected) **Le** ʔę́·^{4} (accent not expected) **Co** ʔą· (reflects *ą· rather than *ią·).

255 ***ʔią·^{HLH}** *uncle* **VN** ʔyaŋ *my aunt* (nasalization expected; ŋ may be a person marker) **Ll** ʔę·^{232} **Le** ʔę· **Qi** ʔąh^{242} ca^{3} **Co** ʔę́·^{21} (12 without an accent expected).

*b

256 ***bə^{LH}** *dove* **Tp** i^{1}hu^{2} bə^{2} (32 expected) **Pa** huw^{2} bɨw^{32} **Ll** bə^{3} *mourning dove* **Le** bo^{3} **Qi** po^{4} **Co** bə^{2}.

257 ***bə** *a kind of tuber* **Pa** bɨw^{1} **Co** hi· bə· (a short vowel expected).

258 ***bə·ʔ^{H}** *ball, short* **Tl** pé^{4} *short person* (ʔ and 1 expected) **Tp** bəʔ^{31} *ball, short* **Pa** za^{2} bɨwʔ^{31} *short person* (1 expected) **VN** za baɨʔ me̯ʔ *underground dwarf* **Qi** poʔ^{1} *ball* (reflects accented syllable with a short vowel) **Y** bəʔ *ball* **Tm** bɨʔ *ball* **Co** bə·ʔ^{21} *ball.*

259 ***bíˡ** [1] *strength* ***bíŋˡ** [2] *strong (an.)* **Oj** pi^{3} [1] pi̧^{3} [2] **U** ua^{3}pei^{4} [1] pąi̧^{4} [2] **Tl** pi̧^{3} [2] **S** wa pi [1] **Qe** pęi̧ [2] **Tp** bí^{2} [1] bę́^{2} [2] **Pa** bí^{2} [1] bé^{2} [2] **VN** bęi̧ [2] **Ll** hu^{23}bi·^{23} [1] (3 and h expected) **Qi** pi̧h^{3} [2] **Co** bí·ŋ^{2} [2]. **Oj** through **Pa** reflect a short vowel and **VN** through **Co** reflect a long vowel.

260 ***bíˡ** [1] *move (inan. obj.)* ***bíŋˡ** [2] *move (an. obj.)* **Tp** zɨ^{2}bi^{31} [1] (2 with an accent expected) **Pa** bí^{2} [1] bé^{2} [2] **Ll** bi^{32} [1] bin^{32} [2] (3 and h expected in both forms) **Le** bi^{32} [1] (tone 3 and accent expected) **Co** bír^{12} [1].

261 ***be^{LH}** *handful* **Ch** pa **Tp** ba^{32} *round (inan.)* **VN** be **Ll** ba^{3} **Qi** pa^{4} **Y** be *cylindrical.*

262 ***be** *shave* **Pa** ŋyí^{1} na^{2} bá^{1} ha^{3} *razor blade* **Ll** ba^{32} **Le** be^{32}.

263 ***beŋ** [1] ***beʔ** [2] *roll up* **U** si^{2}pą^{5} *(first person singular)* [1] **Tp** bą́^{2} za^{2} [1] **Pa** bę^{32} *curl* [1] **Ll** ben^{32} [1] **Le** bey^{32} [1] **Y** beʔe *(second person past)* [2] **Co** beʔr^{2} [2].

264 ***beʔŋ^{H}** *big, fat* **Oj** pęʔ^{1} **Pa** bą́ʔ^{2} (1 expected) **Oz** bąʔ **Ll** beʔn^{2}.

265 ***ba** *beat, pound* **Oj** pa^{3} ʔni^{2} **U** pa^{23} **Tl** pá^{3} **S** pa **Tp** bá^{2} za^{2} **Pa** bá^{2} *hit with stick* **VN** ba hna *(first person singular)* **Ll** bo^{32} **Le** ba^{32} **Qi** poh^{24} (h not expected) **Y** ba **Co** bár^{12}.

266 ***béŋ^{HL}** *clumsy* **Tp** bą^{3} *heavy-footed* **Ll** bę·n^{3} (length not expected; 23 and h expected) **Y** bǫ **Co** bǫ́^{2} *big, clumsy.* This set is placed at the end of the sequences of *b and an oral vowel because of its unusual nature. All the cognate forms have nasalized vowels, but the expected reflexes before *Y would be nasals. Cf. sec. 3.1 of the Introduction.

*z

267 ***zɨ^{LH}** *post* **U** a^{2}ʔma^{3}cei^{3} **Ch** ʔma ceg **S** ʔma^{2}ci^{32} **Tp** ʔma^{2}zɨ^{32} **Pa** ʔma^{2}ziw^{32} **Ll** zɨ^{3} **Le** zɨ^{3}.

268 ***zɨ^{LH}** [1]~***zí^{L}** [2] *grind* **Oj** či^{3} ʔni^{2} [2] a^{4}ci^{2} ʔni^{2} [1] **S** ma kwa^{1}ci^{32}co [1] **Ll** zɨ^{3} [1] ǰih^{3} [2] **Lt** tay zɨ [1] **Qi** cih^{4} [1] (h not expected) **Co** dir^{2} [1].

269 ***zɨ** [1] ***zɨŋ** [2] *be on top of* **U** ua^{2}cąi^{2} *(an.)* [2] **Tl** ra^{2}cég^{2} [1] **Tp** tə^{2}zɨ^{31} *straddle* [2] **Pa** ti^{2}ziw^{32} [1] zə́^{2} [2] **Ll** zɨn^{32} [2] **Co** dí·ŋ^{2} [2] (length not expected).

270 ***zɨŋ** *set (sun)* **Tl** ka^{34}cąg^{4} (reflects *zɨʔŋ) **Tp** ta^{2} zɨ^{31} **Pa** ka^{3}ta^{1}zə́^{1} ʔyiw^{2} **Ll** ka^{23}zən^{23} ñiʔ^{2} (zɨn expected; the form may be the animate form of *zá^{HL} *be used up* and not appropriate here).

271 ***zɨ́^{LH}** *heart* **Oj** mɨ^{3}ci^{3}a^{2} **U** ɥ^{4}cei^{43} **Tl** cég^{3} **M** maɨ cɨ cye **S** mɨ^{3}ci^{23} **Tp** zɨ́^{32} **Pa** zɨ́w^{32} **VN** zɨ **Oz** ci (zɨ expected) **Ll** zɨh^{2} **Le** zɨ́^{2} **Qi** ci^{3} **Co** dí·^{21} (length unexpected).

272 ***zɨ́^{LH}** *ice, hail* **U** cei^{43} **Ch** ceg **S** cɨ **Tp** zɨ́^{32} **Pa** zɨ́w^{32} **VN** zɨ **Ll** zɨh^{2} **Lt** zɨ **Qi** ci^{3} **Co** dí·^{21} (length unexpected).

273 ***zɨ·^{L}** *dog* **Oj** cɨ^{2} **U** a^{1}cai^{3} **Tl** cag^{3} **M** cɨ **S** caɨ^{2} **Tp** zɨ^{2}hɨʔ^{31} (zag expected if cognate were in tonic position) **Pa** zɨy^{2} **VN** zaɨ **Oz** zɨ **Ll** zɨ·^{3} **Le** zɨ·^{3} **Qi** cih^{23} **Y** zi **Tm** zi **Co** di·^{2}.

274 ***zɨ·ʔ** *gall* **U** o^{2}ceiʔ^{1} **Ch** cag (final ʔ expected) **S** caʔ^{1} (ɨ expected) **Tp** zɨʔ^{1} **Pa** zɨʔ^{31} **VN** zaɨʔ **Ll** zɨ·ʔ^{3} **Co** diʔ^{1} (long vowel expected). Cf. *zɨ·ʔ^{LH} *bitter* and *zɨ·ʔ *wild herb.*

275 ***zɨ·ʔ** *wild herb* **Pa** hąʔ^{32} zɨʔ^{31} **Ll** hǫʔ^{2} zɨ·ʔ^{31}. This set and *zɨ́·ʔ^{LH} *bitter* and *zɨ·ʔ *gall* are probably related.

276 ***zɨ́·ʔ^{LH}** [1] ***zɨ́·ʔ^{HL}** [2] *bitter* **Oj** cɨʔ^{4} [1] **U** ceiʔ^{3} [1] (reflects syllable without accent) **Tl** cégʔ^{3} [1] **S** cɨʔ^{32} [1] (reflects syllable without accent) **Tp** ziʔ^{3} [2] **Pa** ziʔ^{3} [2] **Ll** ǰiʔ^{23} [2] **Le** ǰɨʔ^{4} [2] **Co** gíʔ^{12} [2]. Cf. *zɨ·ʔ *gall* and *zɨ·ʔ *wild herb.*

277 ***zɨ·ʔ** [1] ***zɨ·ʔŋ** [2] *burn up, singe* **S** ma^{2}cɨʔ^{2} *it burned up* [1] (does not reflect accented syllable) **Tp** zíʔ^{2} *singe,* [1] zíʔ^{32} *wild fire* [1] **Pa** zɨʔ^{2} *burn up,* [1] zɨʔ^{32} *burned up,* [1] zóʔ^{2} *singe* [2] **Ll** zɨʔ^{2} *wild fire,* [1] zɨ·ʔn^{32} *singe* [2] **Co** dí·ʔ^{12} *singe.* [1]

278 ***zɨ^{H}** *head* **Oj** či^{1}a^{2} **U** ma^{3}tʸi^{2} **Tl** ci^{42} **S** cis^{1} **Tp** mɨ^{2}zi^{21}za^{2} **Pa** zi^{1} **VN** maɨ zi hna **Oz** mɨ ǰi **Ll** mɨ^{2}ǰi^{2} **Le** ǰɨ **Qi** tʸi^{2} **Y** gi **Tm** lo gi **Co** mo^{2}gi^{1}.

279 ***zɨ^{L}** [1] ***zɨ·** [2] *cooked corn drink* **Oj** či^{2} [1] **U** tʸi^{3} [1] **Pa** zíw^{2} [1] **Ll** ǰi^{3} [1] **Qi** ʉ^{2}cih^{242} [2] **Co** hmi^{2}di·^{1} [2].

280 ***zɨ^{LH}** *take out* **Oj** a^{4}či^{2} ʔni^{2} **U** tʸi **Tl** ci **S** ci^{23} (reflects syllable with accent) **Tp** zí^{2} (32 without accent expected) **Pa** zi^{32} **Ll** ǰi^{3} **Le** ǰɨ **Qi** tʸih^{4} (h not expected) **Y** giʔ (ʔ not expected; perhaps a marker of second person).

281 ***zɨ^{LH}** [1] ***zɨ·^{LH}** [2] *outside* **Tl** cáy^{4} [2] **Ch** cyei [2] **S** cyeiʔ [2] (ʔ not expected) **Qe** caiʔ [2] (ʔ not expected) **Tp** ha^{1}zi^{32} [1] **Pa** ha^{1}zi^{32} [1] **Ll** ši^{2}ǰi^{32} [1] **Qi** i^{1}tʸi^{4} [1].

282 ***zí^{L}** *wind* **Oj** či^{3} **U** tʸi^{4} **Tl** cí^{3} **S** ci^{23} **Tp** zí^{2} **Pa** zí^{2} **VN** zi **Oz** wu ǰi **Ll** ǰih^{3} **Le** ǰɨ^{3} **Ql** tʸi^{24} **Y** gi **Co** gí^{12}. The following forms are probably related: *zí^{L} *Jacatepec, a Chinantec village* **U** a^{2}tʸi^{4} **Ch** ho ci **Tp** ha^{1}zí^{2} **Pa** ʔa^{1}zí^{1} (2 expected) **Co** ʔo gí^{12} *Chiltepec.*

283 ***zi·ŋ^{HL}** *roundworms* **Ll** ǰi·n^{23} **Qi** zih^{4} (tʸ expected).

284 ***zí·^{L}** [1] *hot (inan.)* ***zí·ŋ^{L}** [2] *hot (an.)* **Oj** či^{3} [1] **U** tʸei^{4} [1] **Tl** cáy^{3} [1] **Ch** cyey [1] **M** ci [1] **S** cyei^{23} [1] **Qe** cai [1] **Tp** zéi^{2} [1] zę́^{2}za^{2} [2] **Pa** zíw^{2} [1] zé^{2} [2] **VN** zei [1] **Oz** ǰi [1] **Ll** ǰi·h^{3} [1] ǰi·hn^{3} [2] **Le** ǰɨ [1] **Qi** tʸih^{3} [1] **Co** gí·^{2} [1] gí·ŋ^{2} [2].

285 ***zuʔŋ** *break in two* **Tl** cę́wʔ^{2} **S** ka cǫʔ **Qe** la cęʉʔ **Ll** zuʔn^{32} *fold in two.*

286 ***zu·^{H}** *water jug* **Oj** na^{1}cu^{31} **U** a^{2}cai^{32} **Tl** caw^{4} **S** cie^{23} (3 expected) **Qe** ceu **Tp** nɨ^{1}zɨg^{1} **Pa** zəw^{1} **VN** zao **Oz** wa zu **Ll** zu·^{2} **Le** mɨ zu **Qi** cüh^{2} **Y** zü **Co** dö·^{1}.

287 ***zu·^{L}** *narrow* **Oj** cu^{2} **U** cai^{3} **Ch** caw **M** cyu **S** caɨ^{2} **Qe** ceu **Tp** zag^{1} (2 expected) **Pa** zəw^{2} **VN** zao **Oz** zu **Ll** zu·^{3} **Co** dö·^{2}.

288 ***zu·ʔ^{H}** *parakeet* **Tp** i^{1}zɨʔ^{31} **Ll** ǰö·ʔ^{2} (reflects *ziu·ʔ) **Qi** cüh ʔ^{1} (reflects syllable with accent) **Co** dö·ʔ^{1} (reflects syllable with accent, but accent expected in **Co** form).

289 ***za^{L}** [1] ***za·^{L}** [2] *person* **Oj** ca^{2} [1] **U** cie^{3} [2] **Tl** cew^{3} [2] **Ch** co [2] **M** co [2] **S** có^{2} [2] (accent not expected) **Qe** cau [2] **Z** cau [2] **Tp** za^{2} [1] **Pa** za^{2} [1] **VN** za [1] **Oz** za [1] **Ll** za^{3} [1] **Le** za^{3} [1] **Qi** ca^{34} [1] **Y** ze [1] **Tm** za [1] **Co** dia^{12} [1].

290 ***za** *drip* **Tp** zá^{2} **Ll** za^{23}.

291 ***zaŋ** [1] ***za·** [2] ***za·ŋ** [3] *dance* **U** cie^{23} hą^{1} [2] **Ch** cos no hą [2] **S** cą co [1] **Tp** zą^{32}za^{2} [1] **Pa** cyi^{2}zą^{32} [1] **Ll** zən^{23} [1] **Lc** zan [1] **To** ǰa [1] (zan expected) **A** zan [1] **Le** ga^{3}zęy^{43} [1] (zay expected) **Qi** cęih^{3} [3] (nasalized vowel not expected) **Co** ta de·iŋ^{12} [3].

292 ***zá^{HL}** [1]~***zia** [2] *be used up* **Oj** hma^{1} čą^{2} ʔni^{2} (reflects *ziaŋ) **U** cia^{34} [1] si^{2}tʸa^{23} [2] **Tl** ma^{3}cá^{2} [1] **Ch** ma ka ca [1] ma kyą cya [2] **S** ma ka ca [1] **Tp** ka^{2}za^{3} [1] **Pa** za^{2} [1] (reflects syllable without accent) zyí^{3} [2] **Ll** mɨ^{3}zah^{23} [1] rɨ^{23}ǰa^{3} [2] **Pe** mɨ ku zo [1] **Le** ka za [1] ǰa [2] **Qi** ca^{24} [1] (34 expected) **Co** ka dia^{12} [1] (reflects syllable without accent).

293 ***zaʔ** *half* **Oj** tǫ^{4}coʔ^{2} **U** to^{5}cieʔ^{32} **S** tu^{3}coʔ^{23} **Tp** zoʔ^{31} **Pa** tǫ^{3}zoʔ^{31} **Ll** tu^{23}zoʔ^{23} **Le** tǫ zaʔ **Qi** kǫʔ^{4}caʔ^{4} The following forms are probably related: *za· [1] *half (inan.)* *za·ŋ [2] *half (an.)* and *zia· [3] *half* **U** ka^{3}cie^{32} [1] ka^{3}cịǫ^{32} [2] **Tl** ka^{3}co^{12} [1] ka^{3}cǫ^{2} [2] **S** cyo ʔyu *noon* [3].

294 ***zaʔ** [1] *(past)*~***ziaʔ** [2] *(future) find (inan.)* ***zaʔŋ** [3] *(past)*~***ziaʔŋ** [4] *(future) find (an.)* **Oj** ka^{3}coʔ^{31} hna^{3} [1] **U** cieʔ^{32} [1] tʸieʔ^{32} [2] **Tl** cóʔ^{4} [1] cyóʔ^{4} [2] **Ch** co [1] (in this and the following form ʔ expected, but vowel reflects closed syllable) cą [3] **S** ka^{3}coʔ^{23} [1] cyoʔ^{23} [2] ka^{3}cąʔ^{32} [3] cyąʔ^{32} [4] **Qe** ma la cauʔ [1] **Tp** zioʔ^{2}za^{2} [2] **Pa** zóʔ^{2} [1] zyóʔ^{3} [2] zą̀ʔ^{32} [3] **VN** zoa [1] (ʔ expected, but vowel reflects closed syllable) **Ll** ka^{23}zoʔ^{23} [1] rɨ^{23}ǰo·ʔ^{23} [2] (short vowel expected) ka^{23}zəʔn^{23} [3] rɨ^{23}ǰeʔn^{23} [4] **Qi** caʔ^{34} [1] ceihʔ^{34} [3] (reflects a long vowel) **Co** dé·ʔr^{21} [1] (reflects a long vowel).

295 ***za·^{H}** *guilt, sin* **Oj** co^{1}a^{2} (31 expected) **U** cie^{32} **Tl** co^{4} **S** co^{3} **Qe** cau **Tp** zo^{21} *sin* záu^{1} *guilt* **Pa** zaw^{1} **Ll** zo·^{2} **Qi** cah^{2} **Co** de·^{1}.

296 ***za·^{HLH}** *corncrib, loft* **Ll** zo·^{232} **Le** za **Qi** cah^{242}.

297 ***za·** *male* **Oj** ca^{4}lo^{31} *male mule* **U** a^{1}ʔdʸie^{23} cie^{34} *cock* **Tl** co^{34} **S** tu^{2}co^{23} *Tom turkey* **Qe** ka ʔo cau *cock* **Tp** zó^{2} *young man* **Pa** tu^{2}zú^{2} *Tom turkey* (zəw expected) **VN** zo **Oz** zɨ zo *male dog* **Ll** zo·h^{23} **Le** za **Qi** cah^{3} **Y** hoʔ za *steer.*

298 ***za·** *beach* **U** i^{2}cie^{32} **Pa** hɨ^{1}zaw^{2} **Ll** zo·^{2}.

299 ***za·** *goes* **Oj** co^{23} **U** cie^{23} **Tl** co^{34} **S** co^{2} **Qe** cau **Tp** zó^{3} **Pa** záw^{3} **VN** zao (o expected) **Oz** zo **Ll** zo·^{32} **Qi** ca (ah expected) **Co** dér^{2} (long vowel expected). This set is probably related to *za·ʔŋ *go home.*

300 ***zá^{LH}** *straight* **Oj** co^{2} **U** ko^{3}-cie^{43} **Tl** có^{4} *truth* **S** co **Qe** hu cau *truth* **Tp** ko^{2}zau^{32} **Pa** zəw^{32} **VN** kǫ zo **Oz** zo **Ll** zo·h^{2} **Ql** cah^{4} (43 expected) **Co** dé·^{21}.

301 ***zá·HLH** *sickness* **Oj** co^{31} **U** cie^{2} **Tl** cew^{2} **Ch** co **S** có^{1} (accent not expected) **Qe** cau **Tp** zo^{21} **Pa** zaw^{1} **Ll** zo·h^{2} The following forms are probably related: *za·ʔ^{H} [1] *za·ʔ^{HLH} [2] *sick* **Oj** coʔ **U** a^{3}cieʔ^{1} [2] (tone reflects an open syllable) **Tl** cǫ^{2} [2] (reflects *zá·ŋ^{HLH} as do the **S** and **Qe** forms) **Tp** zoʔ^{31} [2] **Pa** zoʔ^{1} [2] **VN** zoaʔ **Ll** zo·ʔ^{232} [2] **Le** zayʔ (reflects final *ŋ) **Qi** cahʔ^{42} [1] **Y** zaʔa **Co** de·ʔr^{21} [1].

302 ***za·ʔŋ** *go home* **Pa** zą́ʔ^{3} **Ll** zə·ʔn^{32}. This set is probably related to *za· *goes.*

303 ***zlú^{HL}** [1] *good (inan.)* ***zlúŋ^{HL}** [2] *good (an.)* **Oj** či^{4} [1] **U** cei^{34} [1] **Tl** ci^{2} [1] (accent expected) **Ch** cyu [1] **M** cyu [1] **S** cyu [1] **Qe** ci [1] **Tp** ze^{3} [1] **Pa** zyo^{3} [1] zyow^{3} [2] **VN** zyu [1] zyuŋ [2] **Oz** ǰu [1] **Ll** ǰöh^{23} [1] ǰuhn^{23} [2] **Le** ǰu [1] **Qi** tʸüh^{242} [1] (34 expected but not h) **Y** gyü [1] **Tm** gyu [1] **Co** gió^{2} [1].

304 ***zla** [1] *put (inan.)* ***zlaŋ** [2] *put (an.)* **Oj** ča^{1} ʔni^{2} [1] **U** tʸa^{34} [1] **Tl** cyá^{2} [1] **S** ci [1] **Tp** zia^{32} [1] **Pa** zyi^{32} [1] zyą^{32} [2] (the **Tp** and **Pa** forms require plural objects) **VN** ze *tell (story)* [1] **Ll** ǰa^{3} [1] ǰen^{3} [2] **Le** ǰa^{4} [1] **Y** gye [1].

305 ***zlaʔ** *rafter* **U** a^{2}ʔma^{3} tʸieʔ^{2} **S** ʔma cyoʔ **Qe** ʔma cyuʔ **Tp** ʔma^{2}-zióʔ^{2} **Ll** ʔmo^{3} ǰo·ʔ^{32} (short vowel expected).

306 ***ziaʔ** [1] ***zia·ʔŋ** [2] *warm oneself, heat* **Tp** hme^{2}ziǫʔ^{2} [2] **Pa** zyoʔ^{32} [1] mi^{2}zyawʔ^{3} [2] **Ll** ǰoʔ^{23} [1] li^{23}ǰa·ʔn^{23} *become warmed* [2] **Co** hmi giá·iŋʔ^{21} [2]. This set is probably related to *ziá·^{L} *warm.*

307 ***ziaʔ** *distribute* **Tp** zióʔ^{32} **Pa** zyóʔ^{32} **Ll** ǰoʔ^{23}. These forms are probably related to *ziá·^{H} *distribution.*

308 ***zlaʔŋ** *arrive at home* **Oj** čąʔ^{3} ʔni^{2} **U** tʸąʔ^{4} **Tl** cyąʔ^{2} **S** ku cyąʔ **Tp** ziąʔ^{2} ʔne^{2} **Pa** zyąʔ^{3} **Ll** ri^{23}ǰeʔn^{2} **Lc** ǰaʔn **Lt** maǰaʔu. These forms are probably related to *zia· *arrive.*

309 ***ziáʔ^{LH}** *tapir* **U** a^{5}tʸieʔ^{43} **Ch** cyoʔ **M** gyeʔ (cy expected) **S** cyoʔ^{32} (reflects a syllable without accent) **Qe** cyuʔ **Pa** zyiʔ^{32} (reflects a long vowel) **Ll** ǰoʔ^{2} **Lc** ǰaʔ **Pe** ǰeʔ **To** ǰeʔ **A** zeʔ **Lt** ǰaʔ **Ql** tʸaʔ^{3} mohʔ^{34} **Co** giaʔ^{2}.

310 ***zia·^{H}** [1] *some (inan.)* ***zia·ŋ^{H}** [2] *some (an.)* **Pa** ka^{2}zyew^{1} [1] ka zyow [2] **Ll** ka^{3}ǰo·^{2} [1] ka^{3}ǰa·n^{2} [2] **Pe** ka ǰa [1].

311 ***zia·^{H}** or ^{HL} *cockroach* **Tp** mi^{1}-huiʔ^{2} ziog^{2} **Pa** mi^{1}zyew^{2}.

312 ***zia·^{L}** *cleared brush* **U** tʸie^{3} **S** cyo **Qe** cyu **Tp** ziog^{2} **Pa** zyew^{2} **Ll** ǰo·^{3} **Pe** ǰa **Le** ǰa **Y** gye **Co** gie·^{1} (2 expected).

313 ***zla·HLH** *agave (maguey)* **U** ma^{2}tʸie^{1} **Tl** cyo^{42} **S** cyo^{1} *agave fiber* **Qe** tuʔ cyu *burlap bag* **Tp** ci^{1}zio^{1} **Pa** zyew^{1} *string* **VN** zye **Ll** ǰo·^{232} **To** ǰe **A** ze **Le** ǰa **Qi** tʸia^{242} (h

expected) **Y** gye *agave fiber* **Co** gie·^{12}.

314 ***zia·HLH** *grandchild* **Oj** yį^{2}če^{31}-a^{2} **U** a^{3}t^{y}ie^{1} **Tl** cyo^{42} **M** cye **S** cyo^{1} **Qe** cyu **Tp** zio^{21} **Pa** zyew^{1} *(first person singular)* **VN** zoi *(first person singular)* (zye expected) **Oz** ǰo **Ll** ǰo·^{232} **Lc** ǰa **Pe** ǰa **To** ǰe **RC** ǰa **A** ze **Le** ǰa·^{42} **Qi** t^{y}ia^{12} *(first person singular)* (h expected with tone 242) **Co** gie·r^{12}.

315 ***zia·HLH** [1] ***zia·L** [2] *sweat* **Oj** hmɨ^{2}če^{31} [1] **U** t^{y}ie^{3} [2] **Tl** meg^{3}-cyo^{42} [1] **S** mi^{2}cyo^{1} [1] **Qe** mi cyu **Tp** hme^{1}ziog^{2} [2] **Pa** hmi^{1}zyew^{2} [2] zyew^{1} *steam, fog* [1] **Ll** mɨ^{23}ǰo·^{232} [1] **Pe** mɨǰa **To** mɨǰe **A** mɨze **Le** mɨǰa **Qi** t^{y}ia^{242} [1] (h expected) **Co** hmɨ·^{2} gie·^{2} [2].

316 ***zia·** *arrive* **Tl** cyo^{34} **Tp** zióg^{2} **Pa** zyéw^{3} **Ll** ka^{23}ǰo·h^{2}. This set is probably related to *ziaʔŋ *arrive at home.*

317 ***zia·ŋ** *untie* **U** t^{y}ǫ^{4}i^{3} tįǫʔ^{2} *they are getting divorced* **Ll** ǰa·n^{32}.

318 ***ziá·H** *distribution* **Ll** to·ʔ^{23} ǰo·h^{2} **Co** hmo·r^{1} gié·^{1}. This set is probably related to *ziaʔ *distribute.*

319 ***zlá·L** *warm* **Tl** cyéw^{3} **Ch** cyo **S** cyó^{23} (accent not expected) **Qe** cyu **Tp** zióg^{2} **Pa** zyéw^{2} **Ll** ǰo·h^{3} **Pe** ǰa **To** ǰe **A** ze **Le** na ǰa **Qi** t^{y}iah^{3} **Co** gie·. This set is probably related to *ziaʔ *warm oneself, heat.*

320 ***ziá·L** *yesterday* **Oj** če^{3} **U** t^{y}ie^{4} **Tl** cyéw^{3} or cyú^{3} **Ch** cyo **M** ci (cye expected) **Qe** cyu **Tp** zióg^{2} **Pa** zyéw^{2} **Oz** ǰo **Ll** ǰo·h^{3} **Lc** ǰa **Pe** ǰa **A** ze **Le** hą ǰa **Qi** t^{y}ia^{4} (h expected with tone 3) **Co** gié·^{2}.

321 ***ziá·LH** *pool* **Tl** cyó^{4} **S** cyo^{2} **Tp** ziog^{32} **Pa** zyew^{32} **Ll** ǰo·h^{2} **Qi** t^{y}ia^{43} (h expected) **Co** gié·^{21}.

322 ***zia·ʔH** *chical, jinicuil* **Oj** kwoʔ^{1} čaʔ^{1} **U** ku^{4}t^{y}aʔ^{3} lo^{3} (32 expected) **Tl** cyaʔ^{1} **S** cyaʔ **Tp** nɨ^{1}-ziaʔ^{31} **Pa** zyiʔ **Ll** ǰo·ʔ^{2} **Qi** t^{y}iaʔ^{42} **Co** gie·ʔ^{21}.

323 ***ziá·ʔLH** *cacao, chocolate* **Oj** mɨ^{3}čaʔ^{4} **U** ų^{4}t^{y}aʔ^{3} (reflects syllable without accent) **Tl** cyaʔ^{4} **Ch** cyaʔ **S** mi^{2}cyáʔ^{1} (23 expected) **Qe** mɨcyaʔ kaʔ **Tp** mɨ^{2}ziáʔ^{32} **Pa** zyiʔ^{32} **VN** zyeʔ **Oz** tiǰoʔ *chocolate drink* **Ll** mɨ^{31}-ǰo·ʔ^{32} (32 may be derived from tone 2, which is the expected reflex) **Lc** mɨ ǰaʔ **Pe** mɨǰaʔ **To** mɨǰeʔ **A** mɨzeʔ **Le** mɨǰaʔ **Qi** mɨʔ^{1} t^{y}aʔ^{3} (The **Qi** and **Co** forms reflect *ziáʔ) **Co** tö^{1} giaʔ^{2}.

324 ***zia·ʔ** *municipal (building)* **U** hauʔ^{32} t^{y}ie^{3} (reflects open syllable) **Ll** i^{23}ǰo·ʔ^{32} **Pe** ʔñö ǰaʔ **Le** ñu ǰaʔ.

*g

325 ***gɨH** *lover* **U** keg^{1} (2 expected) **Tp** gɨ^{21}za^{2} **Pa** gɨ^{1} **Ll** gɨ^{2} **Co** gɨr^{1}.

326 ***gɨʔ** *candle* **Ll** gɨʔ^{2} **Le** gɨʔ.

327 ***gəʔ** [1]~***kəʔ** [2] *eat* **U** geʔ^{4} *feed* [1] (k expected) **Tp** gə́ʔ^{32} [1] **Pa** gíwʔ^{32} [1] kíwʔ^{2} [2] **VN** nagə [1] (ʔ expected) **Ll** e·ʔ^{32} [1] (seems to reflect *ge·ʔ but it may be reshaped from *gəʔ on the analogy of *ia·ʔ *feed*) kəʔn^{3} [2] **Y** dəʔ [1] **Co** gəʔr^{2} [1] kəʔ^{1} [2]. Cf *kəʔ *eat.*

328 ***giʔŋ** *(a) swing* **Ll** tu^{3}jɨ·ʔ^{3} (this is probably a borrowing from a Qi-type language since g is the expected **Ll** reflex) **Qi** dʸɨʔ^{4} **Co** giŋʔ^{2}.

329 ***gi·ʔ** *light (lamp)* **Pa** gíʔ^{32} **Ll** gi·ʔ^{3} **Le** gi·ʔ^{32}.

330 ***gu·^{HLH}** *owl* **U** a^{2}kau^{1} **Tl** kaw^{42} **S** ku^{1} ʔyaʔ^{1} **Qe** keu **Tp** i^{1}gu^{1} **Pa** gu^{1} hɨʔ^{2} **Ll** gu·^{232} **Qi** guh^{242} *screech owl* **Co** gu·^{12}.

331 ***gu·ʔ** *I drink* **U** lauʔ^{34} (presence of initial l in **U** and **Tl** unexplained; **U** form reflects a short vowel) **Tl** lą́wʔ^{2} (reflects *uʔŋ) **Tp** gɨʔ^{2} **Pa** gɨʔ^{32} **VN** ʔau (the consonant of **VN** and **Oz** forms is probably borrowed from the second-person stem *ʔu·ʔ) **Oz** ʔuʔ **Ll** u·ʔn^{23} **Le** ga^{3}u·yʔ^{4} **Qi** du^{4}-ʔh^{2} **Co** duʔ^{2}u. The initial consonant of this reconstruction, although here labeled *g, is far from certain. The **U** and **Tl** forms reflect *l, the **VN** and **Oz** forms reflect *ʔ, while the **Ll** and **Le** forms reflect no consonant at all. The first person singular form of *eat,* labeled *gəʔ, shares some of the irregular features of this set but seems rather reliably labeled with an initial *g and lends credibility to the labeling of this set with *g.

332 ***gaŋ** *dumb* **U** ką^{2} cei^{43} **Pa** gyǫ^{2}za^{2} *immature* (probably developed from syllable with *ia·ŋ) **Ll** gən^{3} **Qi** go^{3} *ugly* (**Qi** and **Y** forms reflect *ga; they may not be cognate) **Y** ga *ugly.*

333 ***ga·^{HL}** [1] ***ga·^{HLH}** [2] *homeland, base of name for Ojitlán, a large Chinantec town* **Oj** kǫ^{2} ʔwɨ^{31} *Ojitlán* [1] **U** go^{3}gu̯^{32} [1] (g retained and expected 23 reduced to 3 probably because of pretonic position) **Tl** ko^{42}ceg^{3} [2] **Ch** kuʔ ʔwɨ *Ojitlán* (o expected) **S** kuʔwǫ *Ojitlán* (o expected) **Qe** koʔu̯ *Ojitlán* **Tp** go^{21}za^{2} [2] **Pa** go^{2}za [1] **Ll** za^{3} go·^{23} *ancestor, native* [1] **Qi** go^{4}ʔwu̯h^{2} *Ojitlán* [1] **Y** go *country* **Co** go·^{12}o [1] (accent expected).

334 ***ga·** *play* **Pa** gúw^{2} *play with* (derived from *ga·ŋ) **Ll** go·h^{2} *toy.*

335 ***ga·ŋ** *big* **Ll** ga·hn^{3} **Le** gay.

336 ***ga·ʔŋ** *I come home* **Tp** giǫgʔ^{21} (reflects *gia·ʔŋ) **Pa** gyoʔ^{32} (probably reflects *giaʔŋ) **Ll** a·ʔn^{32}-na^{23} **Co** gá·ʔn^{21}.

337 ***giu·ʔ^{H}** *hummingbird* **U** a^{5}kiʔ^{2} (32 and ei expected) **Tl** kiʔ^{1} (ay expected) **S** cikyuʔ **Qe** kiʔ **Pa** cyi^{1}gyuʔ^{1} **Ll** gyö·ʔ^{2} **Le** gyuʔ^{42} (tone

2 and long vowel expected) **Qi** ʔyüh^{42} (d^{y} expected) **Y** gyü? **Co** ʔyö·ʔ^{21} (gi expected).

338 ***giá^{HL}** [1] *ten (inan.)* ***giáŋ^{HL}** [2] *ten (an.)* **Oj** kya^{4} [1] kyą^{4} [2] **U** kia^{34} [1] kịą^{34} [2] **Tl** kyá^{2} [1] kyą́^{2} [2] **S** kya^{23} [1] kyą [2] **Tp** gia^{3} [1] gią^{3} [2] **Pa** gyi^{3} [1] gyaw^{3} [2] **VN** gya [1] gyaŋ [2] **Oz** gya [1] **Ll** gyäh^{23} [1] gyehn^{23} [2] **Lc** gya [1] gyan [2] **Pe** gye [1] **A** gye [1] (may be a misrecording of a) **Le** gyá^{4} [1] gye [2] (final y expected) **Qi** d^{y}a^{34} [1] d^{y}ei^{2} [2] (34 expected) **Y** gye [1] **Co** gí^{1} [1] gị́^{1} [2] (ia expected in the Co forms).

339 ***giaʔ** *mix by shaking* **Pa** gyáʔ^{2} **Ll** kya·ʔ^{23} (in **Ll** and **Le** g rather than k is expected; short vowel expected in **Ll**) **Le** kyaʔ^{4} **Co** gyaʔ^{21} *swing.*

340 ***gia· (hwɨ·)** *hell* **Oj** kyehwɨ **U** ki^{4}heu^{5} (unusual vowel reflexes in **U** and **Tl** may be the result of pretonic position) **Tl** ki^{3}héw^{3} **Ch** kihu **S** kyohwo **Qe** kyuhu **Pa** gyo^{3}hwɨ́y^{3} **VN** gyahu (may be a misrecording of e) **Ll** gyä·h^{23} hwɨ·h^{2} **A** gihwɨ (gye expected; probably the result of pretonic position) **Le** gyafɨ.

341 ***giá·^{L}** [1] *twenty (inan.)* ***giá·ŋ^{L}** [2] *twenty (an.)* **Oj** kye^{3} [1] kyę^{3} [2] **U** kie^{4} [1] kịǫ^{4} [2] **Tl** kyú^{3} [1] **S** kyu^{23} [1] kyǫ [2] **Qe** kyu [1] **Tp** gióg^{2} [1] giǫ́^{2} [2] **Pa** gyéw^{2} [1] gyụw^{2} [2] (accent expected) **VN** gyu [1] gyuŋ [2] **Oz** gye [1] **Ll** gyä·h^{3} [1] gya·hn^{3} [2] **Pe** gye [1] **To** gye [1] **A** gye [1] **Le** gya [1] **Qi** d^{y}iah^{3} [1] d^{y}aih^{3} [2] **Y** gyeŋ [2] **Co** gié·^{2} [1].

342 ***giá·^{HL}** [1] *seven (inan.)* ***giá·ŋ^{HL}** [2] *seven (an.)* **Oj** kye^{4} [1] kyę^{4} [2] **U** kie^{34} [1] kịǫ^{34} [2] **Tl** kyú^{2}[1] **Ch** kyo [1] **M** ki [1] **S** kyo^{23} [1] kyǫ [2] **Qe** kyu [1] **Tp** gio^{3} [1] giǫ^{3}[2] **Pa** gyo^{3} [1] gyow^{3} [2] **VN** gye [1] gyeŋ [2] **Oz** gye [1] **Ll** gyä·h^{23} [1] gya·hn^{23} [2] **Pe** gye [1] **To** gya [1] (may be a misrecording of e) **A** gye [1] **Le** gyá·^{4} [1] gyá·y^{4} [2] **Qi** d^{y}ia^{3} [1] d^{y}ai^{23} [2] (h expected in both forms and tone 3 in the second) **Y** gye [1] **Co** gié^{2} [1] (long vowel expected).

*g^{w}

343 ***g^{w}ɨ·^{L}** *haya tree* **Pa** ʔma^{2} gwɨy^{2} **Ll** ʔmo^{3} gwɨ·^{3}.

344 ***g^{w}ɨ·^{HLH}** [1] *deaf (inan.)* ***g^{w}ɨ·ŋ^{HLH}** [2] *deaf (an.)* **Tp** guɨ^{21} [2] **Pa** gway^{1} [1] gwe^{1} [2] **VN** gwɨŋ [2] **Ll** gwɨ·^{232} [1] gwɨ·n^{232} [2] **Le** gwɨ·y^{42} [2] **Qi** kwuh^{242} [1] **Co** gwɨ·ŋ^{12} [2].

345 ***g^{w}ɨ·ŋ** [1] ***g^{w}ɨ·** [2] *sleep* **Oj** kwɨ^{2} ʔni^{2} [1] **U** ra^{3}kụ^{2} [1] **Tl** kwég^{1} [2] (reflects a short vowel) **Ch** kwęg [1] **M** kwu [2] **S** rakwụ [1] **Qe** rakǫ [1] **Tp** rə^{2}guɨ́^{3} [1] **Pa** ka^{2}gwe^{2} [1] **VN** gwɨŋ [1] **Oz** gwɨ [1] **Ll** gwɨ·n^{3} [1] **Le** na^{3}gwɨ·y^{3} [1] **Ql** kwuh [2] **Y** zagwəni [1] **Co** gwɨ·iŋ^{1} [1].

346 ***gʷɨ·ʔ** *squeeze* **Oj** kwɨʔ^{3} ʔni^{2} **Tl** kwę́gʔ^{2} (reflects *gʷɨʔŋ) **Ch** kweg (reflects *gʷɨ) **S** malikwɨʔ **Tp** guɨʔ^{2} **Pa** gwuʔ^{32} **Ll** gwɨ·ʔ^{23}.

347 ***gʷɨ·L** *sky* **Oj** hmɨ^{3}kwɨ^{2} **Tl** ci^{3}-kwu^{1} *sky* ma^{4}kwu^{2} *earth* (tone 3 expected) **S** mu^{3}kwu^{2} **Qe** huku **Tp** mɨ^{2}guɨ́g^{3} *earth* (tone 2 expected without accent) **Pa** zyi^{2}gwɨy^{2} **VN** hmɨgwi **Oz** mɨgyö **Ll** mɨ^{31}gwi·^{3} **Le** gwi·^{3} **Ql** ụ^{3}kwi^{34} (the **Qi** and **Co** forms reflect a short vowel and the **Co** form a syllable with accent) **Co** hmɨgwí^{12}.

348 ***gʷɨ·HLH** *squirrel* **Oj** kwɨ^{31} **Tl** ca^{4}kwu^{42} **S** ca^{2}kwo^{1} **Qe** caku **Tp** i^{1}guɨg^{1} **Pa** gway^{1} **VN** gwi **Oz** čigyö **Ll** gwi·^{232} **Le** gwi **Qi** kwih^{242} **Co** gwi·^{12}.

349 ***gʷɨ·ʔ** [1]~***gʷɨ·** [2] *cold* **Oj** kwɨʔ^{3} [1] kwɨ^{3} [2] **U** kuʔ^{4} [1] **Tl** kwuʔ^{3} [1] **Ch** kwuʔ [1] kwu [2] **S** kwu^{23} *(first person singular)* [2] **Qe** ku [2] **Tp** guɨ́g^{2} [2] **Pa** gwɨyʔ^{2} [1] gwáy^{32} *(first person singular)* [2] **VN** gwiʔ [1] **Oz** gyöʔ [1] gyö [2] **Ll** gwiʔ^{3} [1] (reflects a syllable with accent) gwi·n^{23} *(first person singular)* [2] **Le** gwiʔ [1] **Qi** kwihʔ^{23} [1] **Co** gwí·^{1} [2].

350 ***gʷe** *sit, live* **Oj** ka^{3}kwa^{2}a^{2} **U** kua^{4} **Tl** kwá^{3} **S** kakwa **Tp** guá^{32} **Pa** gwɨ^{3} **VN** kagwa (?) **Oz** gya **Ll** ka^{23}gwah^{3} **A** rɨgwe **Le** ma^{43}gwa^{34} **Ql** ka^{3}kwa^{34} **Co** gwar^{2}.

351 ***gʷe·** [1] *arrive (at nonbase) (inan.)* ***gʷeŋ** [2] *arrive (at nonbase) (an.)* ***gʷeʔŋ** [3] *arrive (at base) (an.)* **U** kụẹ^{23} [2] (reflects a long vowel) **Ch** kakwą [2] **S** makwąʔ [3] **Tp** gwą^{32} [2] gwą́ʔ^{32} [3] **Pa** gow^{3} [1] gwɨ̨^{32} [2] gwɨ̨ʔ^{32} [3] **Ll** mɨ^{3}gwa·^{23} [1] gwehn^{23} [2] rɨ^{23}gwa·ʔ^{23} (probably reflects another form *gʷe·ʔ meaning *arrive (at base) (inan.)*) gweʔn^{23} [3] **Lc** gwaʔn [3] **Le** gwéy^{4}[2] gwéyʔ^{2} [3].

352 ***gʷe·ʔŋ** *selection* **Pa** ku^{2}rɨ^{2}-gweʔ^{32} **Ll** ka^{3}gwe·ʔn^{32} *a pair.*

353 ***gʷaH** *ear* **Oj** rɨ^{2}kwa^{1}a^{2} **U** to^{3}-ro^{3}kua^{1} (tone 2 expected) **Tl** kwa^{42} **S** kwa **Tp** rə^{2}gua^{21} **Pa** gwɨ^{1} **VN** logwa **Oz** tagwa **Ll** lo^{3}gwo^{2} **Pe** log-wan **Le** lagwa **Qi** loh^{3}kwo^{2} **Co** lo^{2}gwa^{1}.

354 ***gʷaL** *stream* **Oj** huʔ^{4}kwa^{2} **U** hụ^{3}kua^{3} *stream water* **Tl** kwá^{2} *river* (tone 3 expected without accent) **S** kwa^{3} (tone 2 expected) **Pa** hmɨy^{2}-gwu^{2} *stream water* **VN** hmaɨ gwa **Oz** hmɨgwa **Ll** gwo^{3} **Qi** kwo^{34} **Y** gwa *ravine, stream bed* **Co** gwa^{12} hyő·^{21}.

355 ***gʷaʔŋ** *you go (to base)* **Oj** kwąʔ^{1} ʔni^{2} **U** kụąʔ^{3} **M** kwąʔ **Tp** guąʔ^{31} ʔne^{2} **Pa** gwɨ̨ʔ^{2} *(future)* **Ll** gwəʔn^{32}nu^{3} **Lc** mɨgwaʔnnu **Le** mɨ gwaʔu **Qi** kwoihʔ^{24}duʔh^{24} (reflects a long vowel) **Co** gwíʔ^{2} (reflex is rather surprising; a is expected). This set is probably related to *gʷa· *you go (to nonbase).*

356 ***gʷaL** *hand* **Oj** kwo^{2}a^{2} **U** si^{1}kue^{3} **Tl** kwo^{3} **Ch** kwo, gwo (most

recordings show gw in spite of the fact that kw is the expected reflex) **S** kwo^{2} **Qe** ku **Tp** mɨ^{2}gu^{2} **Pa** guw^{2} **VN** gwa **Oz** mago or gwo **Ll** gwo·^{3} **Le** gwa·^{3} **Qi** kwoh^{23} **Tm** gwo **Co** gwo·^{2}.

357 ***gʷa·** *you go (to nonbase)* **Oj** kwoʔ^{1} ʔni^{2} **U** kueʔ^{2} **Tl** kwóʔ^{2} **Ch** kwoʔo **S** kwoʔ **Qe** koʔ (u expected) **Pa** gúʔ^{1} (the **Pa** and **Oz** forms with person-marking ʔ are different from those in other sets reflecting *gʷa·; nevertheless, they reflect an open syllable rather than *gʷa·ʔ—as is the case with the other languages that use ʔ as a marker of second person) **VN** gwąʔ (nasalization not expected) **Oz** goʔ **Ll** gwa·n^{32} **Le** gway **Qi** kwoh^{2}-ʔh^{24} **Co** gwo·ʔ^{12}. This set is probably related to *gʷaʔŋ *you go (to base)*.

358 ***gʷá·^{LH}** *box* **Oj** kwo^{2} **U** a^{2}kue^{43} **Tl** kwá^{4} (o expected) **S** kwo^{2} *drawer* **Qe** ku **Tp** cɨ^{1}gu^{32} **Pa** gwo^{32} **Oz** wagwo **Ll** gwo·h^{2} **Le** gwá·^{2} **Co** gwó·^{21}.

359 ***gʷa·ʔ^{H}** *earth, dirt* **Oj** kwaʔ^{1} **U** o^{1}kuaʔ^{32} **Tl** kwaʔ **S** kwáʔ^{1} (reflects a syllable with accent) **Tp** guaʔ^{31}lag^{1} *adobe*. **Pa** gwaʔ^{1}, gwɨʔ^{1} **VN** gwaʔ **Oz** gwalɨ *adobe* (final ʔ expected) **Ll** gwo·ʔ^{2} **Le** gwaʔ^{2} (long vowel expected) **Qi** kwohʔ^{42} **Co** gwo·ʔ^{21}.

360 ***gʷa·ʔ^{H}** *alligator* **Oj** kwaʔ^{1} **U** a^{2}kuaʔ^{32} **S** kwa^{23} (final ʔ and tone 3 expected) **Pa** gwa^{1}liʔ^{2} (final ʔ expected; does not reflect an open syllable) **Ll** gwo·ʔ^{2}.

361 ***gʷa·ʔ** *church* **Oj** kwaʔ^{4} **U** kuaʔ^{3} **Tl** kwáʔ^{4} **S** kwáʔ^{32} **Tp** guáʔ^{32} **Pa** gwɨʔ^{32} **VN** ʔnui gwaʔ **Oz** gwaʔ **Ll** gwo·ʔ^{32} **Le** gwaʔ **Qi** kwoʔ^{4} (**Qi** and **Co** forms reflect a short vowel) **Co** gwáʔ^{2}.

*s

362 ***sɨ** [1] *changed, other (inan.)* ***sɨŋ** [2] *changed, other (an.)* **Oj** sɨ^{23} [1] sɨ^{23} [2] **U** seg^{34} [1] a^{3}sąg^{23} [2] **Tl** ra^{2}θęg [2] **Tp** hme^{2}cɨ^{3} *change* [2] **Pa** mi^{2}cá^{3} *change* [2] **Oz** na sɨ [1] **Ll** sɨn^{3} [2] **Qi** sɨ sɨ *it changes* [1] **Co** hmɨsɨ·iŋ^{2} *change* [2] (short vowel expected).

363 ***sɨ́^{H}** *skirt (chapaneco)* **To** cɨ^{1}hə́^{1} **Oz** mɨʔ sɨ **Ll** ʔmɨ·ʔ^{3} sɨh^{2}. The following forms also probably belong to this set: **U** u^{1}seg^{23} *fish scales* **Ch** θeg haʔ *fish scales* **S** θɨ haʔ *fish scales* **Ll** sɨh^{2} *orange membrane*. This set is probably related to *sɨ·ʔ^{H} *clothing* and *hɨ *skirt*.

364 ***sɨ́^{L}** *butterfly* **Oj** haʔ^{3}sɨ^{3} **U** a^{1}seg^{4} **Tl** ca^{3}θég^{3} **S** ci^{3}θɨ^{23} **Tp** i^{1}cɨ́^{2} **Pa** cyi^{1}cɨ́w^{2} **VN** sɨ **Ll** sɨh^{3} **Le** sɨ **Qi** sɨ^{24} **Co** gwɨ^{2}sɨ́^{12}.

365 ***sɨ́^{LH}** *glass, bottle* **Oj** sɨ^{3} **U** a^{2}seg^{43} **Tl** θeg^{3} (accent expected) **S** θɨ **Tp** nɨ^{1}cɨ́^{32} **Pa** cɨ^{32} (ɨw expected)

Oz wa sɨ **Ll** sɨh^{2} **Le** mɨ sɨ **Qi** sɨ^{24} (tone 3 expected) **Co** sɨ́^{21} (short vowel expected).

366 ***sɨ?** [1]~***sɨ·?** [2] *tell* **Oj** si?^{31} ?ni^{2} [2] **U** sag?^{43} [1] sai?^{32} [2] (ei expected) **Tl** θag^{34} *(first person object)* [1]; (final ? expected) θáy?^{2} *(third person object)* [2] **Ch** θag [1] (final ? expected) θey? [2] **S** ka^{3}θaɨ?^{3} [1] (ɨ expected; vowels of **S** and **Pa** forms reflect an open syllable, as in the **Tl** and **Ch** forms) θéi?^{3} [2] **Qe** θai? [2] **Tp** cɨ?^{32} [1] **Pa** cay?^{32} [1] (ɨ expected) cey?^{1} [2] **VN** saɨ? [1] sei? [2] (cy expected; the s may have remained because of paradigmatic pressure) **Ll** sɨ?^{23} [1] ši·?^{2} [2] **Qi** sɨ^{3}-?h^{4} [1].

367 ***sɨ·^{H}** [1] ***sɨ·^{L}** [2] *nest, sticks* **Oj** sɨ^{31} [1] **U** sag^{3} *nest* [2] **Tl** θag^{3} [2] **M** θɨ **S** θaɨ **Qe** θaɨ? tą *bird's nest* (vowel reflects an open syllable) **Tp** nɨ^{1}cag^{2} *nest* [2] **Pa** cay^{1} há?^{2} *his nest* [1] (ɨy expected) ciy^{2} *nest (unpossessed)* [2] **VN** saɨ **Oz** wa sɨ **Ll** sɨ·^{2} [1] **Le** sɨ **Qi** sɨh^{2} *sticks* [1] sɨh^{23} *nest* [2]. Form [2] seems to be more consistently associated with the meaning *nest.*

368 ***sɨ·^{L}** *valley (barranca)* **U** tʸi^{2}sag^{3} **S** ka^{3}θąɨ^{23} *a landslide occurred* (tone 2 expected but not the nasalization) **Tp** cag^{2} *landslide* **Pa** ciy^{2} **Ll** sɨ·^{3} *landslide* **Qi** kwa^{3}sɨh^{23} **Co** kala? sɨ^{12} (tone and vowel reflect a short syllable).

369 ***sɨ·^{LH}** *write* **Oj** sɨ^{3} ?ni^{2} (tone 2 expected) **U** sag^{3} **VN** saɨ **Ll** sɨ·^{3} **Le** ?i^{2}šɨ·^{2}a^{2} *we write* (palatalization not expected; this form is also glossed as *wipe* and perhaps should be assigned to *si *wipe)* **Qi** sɨh^{4}.

370 ***sɨ·** *blanket* **Oj** sɨ^{1}sɨ^{1} **U** a^{2}sag^{1} **Ll** ?mɨ·?^{3}sɨ·^{32} *cloth for carrying children.*

371 ***sɨ·ŋ^{L}** *timid* **Ll** sɨ·n^{3} **Co** sɨ·iŋ^{2}.

372 ***sɨ́^{HLH}** *sand* **Oj** sɨ^{31} **U** o^{1}sag^{2} **Tl** θag^{2} **M** θɨ **S** θaɨ^{1} **Qe** θɨ ta? (reduced from expected reflex of aɨ because of pretonic position) **Tp** cag^{1} (also recorded as ti^{1}cag^{2}) **Pa** cay^{1} **VN** saɨ **Oz** mɨ sɨ **Ll** sɨ·h^{2} **Le** sɨ **Co** mɨ sɨ́·^{12} (accent not expected).

373 ***sɨ·?^{H}** *tongue* **Oj** sɨ?^{1}a^{2} **U** u^{1}seg?^{32} **Tl** θęg?^{42} (tone 1 expected but not nasalization) **Ch** θęg? (nasalization not expected) **M** ci θɨ? **S** θɨ? **Tp** le^{1}cɨ?^{21} **Pa** cɨ?^{1} **VN** saɨ? **Oz** li sɨ? **Ll** sɨ·?^{2} **Le** sɨ́y?^{1} *your tongue* (tone 2 without accent expected in third person form) **Qi** sɨh?^{42} **Co** ni^{1}sɨ·?r^{21}.

374 ***sɨ·?^{L}** *moon, month* **Oj** sɨ?^{2} **U** seg?^{3} **Tl** θeg?^{4} **Ch** θeg? (ag expected) **M** θɨ? **S** θɨ?^{2} **Tp** cɨ?^{2} **Pa** cɨ?^{2} **VN** saɨ? **Oz** a sɨ? **Ll** sɨ·?^{3} **Le** sɨ?^{3} (long vowel expected) **Ql** sɨh?^{23} **Co** sɨ́·?^{12}.

375 ***sə?ŋ** [1]~***se?ŋ** [2] *pull out, remove from holder* **Tp** ciógʔ^{32} [2] **Pa** ca?^{32} [1] **Ll** sə?n^{32} [1] še?n^{23} [2] **Qi** sə?h^{2} [1] (**Ql** and **Co** forms do not reflect *ŋ) **Co** sə?r^{2} [1] se?r [2].

This set may be related to either or both of the two following sets.

376 ***sə·ʔ** [1]~***se·ʔ** [2] *drag* **Tp** cagʔ^{2} [1] **Pa** ćwʔ^{32} [1] ceʔ^{32} [2] **Ll** sə·ʔ^{32} [1] še·ʔ [2] **Le** sé·ʔ^{4} [1] še·ʔ [2]. This set may be related to the set immediately preceding or the one immediately following or both.

377 ***sə·ʔŋ** *(to) fish* **Pa** cą́ʔ^{2} **Ll** sə·ʔn^{3} (an alternate stem še·ʔn^{23} in **Ll** may reflect *se·ʔŋ in the parent language). This set may be related to either or both of the two preceding sets.

378 ***si^{H}** *ridge, crest of a bird or lizard* **U** sei^{1} *comb of a lizard or bird* **S** θe kaʔo **Qe** θeʔ kaco (the ʔ in **Qe** and **To** and **A** forms probably is a marker of possession) **Tp** ci^{1}rə^{1}giʔ^{2} *cock's comb* **Ll** ši^{2} *ridge* ši^{2} hmɨ^{3} *island* **To** ši ʔnɨʔ *cock's comb* **A** siʔʔnɨʔ *cock's comb* **Le** šɨ́^{1} (the **Le** and **Co** forms reflect a syllable with accent) **Co** sí^{1}.

379 ***si^{H}** *whether* **Oz** či *yes-no question marker* **Ll** ši^{2} *whether, if* **Le** ši (may have remained i rather than ɨ because of unstressed position in sentence) **Co** sɨ^{1} (reflects *ɨ).

380 ***si** *wipe* **U** sei^{23} *clean* **Tl** θęg^{2} (reflects a syllable like *sɨŋ; may not be cognate) **Tp** cí^{32} **Pa** cí^{2} **Ll** ši^{23} **Le** šɨ^{4} **Qi** sih^{24} *clean* **Co** sí·r^{21} (**Qi** and **Co** forms reflect a long vowel).

381 ***sí^{L}** *snare, trap* **U** a^{2}sei^{4} *spring trap* **Ch** θi **Pa** cí^{2} **VN** cye.

382 ***si·** *shave, cut* **S** θei^{32} **Ll** ši·^{32}.

383 ***si·ŋ** *saw* **Ll** ši·n^{32} **Le** ʔi^{2}šɨ·^{42}a^{2}. This set could be related to the preceding one.

384 ***si·ŋ** *send* **U** sąị **Tl** θę́yʔ^{4} (final ʔ not expected) **Tp** cei^{32} (may reflect *si·) **Pa** ce^{32} **Ll** ši·n^{23} **Le** šɨy^{4} (long vowel expected) **Co** sí·ŋ^{12}.

385 ***si·ʔ^{L}** *youth* **O** siʔ^{2} yị *child* **U** si^{3}maiʔ^{2} (reduction of ei to i and loss of ʔ due to pretonic position) **Tp** ciʔ^{2} **Pa** ciʔ^{2} **Oz** sa čiʔ piʔ **Ll** ši·ʔ^{3}. The following forms, which mean *tender,* probably belong to the same set: *si·ʔ **Oj** sɨʔ^{3} **S** θɨʔ. This set may be related to *si·ʔ *finger.*

386 ***si·ʔ** [1] *be standing (inan.)* ***síʔŋ^{LH}** [2] *be standing (an.)* **Oj** siʔ^{3} ʔniʔ^{2} [1] sị^{31} ʔniʔ^{2} [2] (tone 4 expected) **U** siʔ^{3} [1] sị^{3} [2] **Tl** θéyʔ^{4} [1] **Ch** θịʔ [2] **M** θaiʔ [1] (reflects a short vowel) **S** θęʔ [2] **Qe** θąịʔ [2] **Tp** cíʔ^{32} [1] **Pa** ciʔ^{32} [1] ceʔ^{32} [2] **VN** cyeiʔ [1] **Ll** ši·ʔ^{23} [1] šiʔn^{23} [2] (tone 2 expected) **Le** šɨ́ʔ^{3} [1] šɨ́yʔ^{2} [2] (refers to image of a saint rather than a person) **Qi** siʔ^{3} [1] sị^{3} [2] (**Qi** and **Co** forms reflect a short vowel) **Co** siʔ^{2} [1] siŋʔ^{2} [2].

387 ***si·ʔ** [1] ***si·** [2] *finger* **Oj** mɨ^{3}sya^{1}kwo^{2}a^{2} (reflects *sia; probably not cognate) **U** hǫ^{4}si^{1}kue^{3} [2] (ai expected if in tonic position) **Tl** θay kwo [2] **Ch** θeyʔ kwo [1] **M** θiʔ kwo [1] (ei expected if in tonic position in **M** and **S**) **S** θeʔ kwo [1]

Qe θaiʔ ku [1] **Pa** ci gu [2] **Oz** miši gwo [2] (may be a misrecording of č or may have remained š in pretonic position) **Ll** mi̧^{2}ši^{2}gwo·^{3} [2] **Lc** ǰi gwo [2] **A** si gwo [2] **Lt** ši? gwa [1] (may have remained i rather than i̇ because of pretonic position) **Le** ši gwa [2]. This set may be related to *si·ʔ *youth, child.*

388 ***sa** [1] *negative* ***sa**^{H} [2] *negative interrogative* **Oj** sa^{3} [1] sa^{1} [2] **U** sa^{2} [2] **Ch** θya [1] (reflects *sia) **M** θa [1] **Tp** cá^{3} [1] ca^{1} [2] **Pa** ca^{3} [1] ca^{1} [2] **VN** sa [1] **Oz** sa [1] **A** sa [1].

389 ***sa·**^{H} *ascent* **Oj** so^{2} ʔni^{2} *go up!* **U** so^{32} **Tl** θo^{4} **S** θo^{3} **Qe** θau **Tp** co^{21} **Pa** caw^{1} **VN** soa **Oz** so **Ll** so·^{2} **Le** sa·^{2} **Qi** soh^{2} **Co** so·^{1}.

390 ***sa·** [1]~***sia·** [2] *cook* **Oj** a^{4}so^{2} ʔni^{2} [1] se^{3} ʔni^{2} [2] **U** so^{3} *boil (milk)* [1] **Tl** θo^{34} [1] **S** cyo [2] **Tp** co^{32} [1] **Pa** co^{32} [1] cyew^{2} [2] **Ll** so·^{3} [1] šo· [2] **Qi** soh^{4} [1].

391 ***sa·(ʔ)(ŋ)** *choke* **U** a^{4}sǫ^{4} hnia^{4} *I choked on my food* **Ll** si^{3}soʔ^{23} *he chokes* (the **U** form reflects *sa·ŋ while the **Ll** form reflects *sa·ʔ).

392 ***sa·ŋ**^{HL} [1] *be splashed, baptized* (intr.) ***sia·ŋ** [2] *splash (tr.)* **U** sǫ^{23} [1] **Tl** ka^{34}θyu^{2} ceg^{3} hmag^{3} *he was baptized* [2] **Ch** θǫ [1] **S** ma ka θǫ [1] (tone 2 expected) **Qe** θąu̯ [1] **Tp** ciǫ^{32} za^{2} hmig^{2} *is baptized* [2] **Pa** cǫ́^{3} [1] (reflects syllable with accent) cyow^{32} [2] **Ll** sa·n^{23} [1] ša·n^{32} [2] **Qi** saih^{23} [1] (tone 4 expected) **Co** sąiŋ^{2} [1] (nasalization not expected; reflects syllable with accent).

393 ***sá·**^{H} *liver* **Oj** mi^{3}so^{1} ʔwaʔ^{2} **U** o^{1}so^{23} cei^{43} **S** θyǫ (reflects *sia·ŋ^{H}) **Qi** ca^{3}fuh^{132} (soh^{1} expected if in tonic position; both **Qi** and **Co** forms reflect initial *z) **Co** dé·^{1}.

394 ***sá·ʔ**^{L} *dirt* **Oj** suʔ^{2} (a expected; reflects a syllable with accent) **Ch** θaʔ *algae* **S** θáʔ^{3} *algae* (accent not expected) **Pa** cáʔ^{2} **VN** soaʔ **Oz** soʔ (a expected) **Ll** soʔ^{3} *dirt, algae.*

395 ***siu** *tamale* **Oz** wa ču **Ll** šö^{2} **A** sö ʔa haʔ.

396 ***siu**^{HLH} *lips* **Tl** θay^{42}ceg^{3} **Ch** θey **M** θi **S** θei^{1} **Qe** θai **Tp** rə^{2}cei^{32} (21 expected) **Pa** cyi^{1}ʔaw^{1} (reduced vowel reflex in pretonic position) **Ll** šö^{2}ʔo·^{2} (242 and long vowel expected if in tonic position) **A** sö ʔo **Lt** šu **Qi** loh^{3}süh^{242} **Co** cö·^{12}. Cf. *siu·ʔ^{HLH} *rim.*

397 ***siu·ʔ**^{L} *itch* **Oj** siʔ^{2} **U** saiʔ^{3} (**U** through **Qe** forms reflect a short vowel) **Tl** θayʔ **Ch** θeyʔ **S** θeʔ^{23} (probably reflects a syllable with accent) **Qe** θaiʔ **Tp** ciʔ^{2} **Pa** cyuʔ^{2} **Ll** šöʔ^{2} (tone 3 expected; reflects a syllable with accent) **A** söʔ **Le** šu (final ʔ expected) **Qi** süh^{4} (23 expected) **Co** sö́·ʔ^{12}.

398 ***siu·ʔ**^{HLH} *rim* **Tl** θay^{2} (42 and final ʔ expected) **Tp** ceiʔ^{31} **Pa** cyuʔ^{1} *edge (of river)* **Ll** šö·ʔ^{232} *brim*

(of hat) **Le** šu·ʔ^{42}. This is very likely related to *siu·^{HLH} *lips.*

399 ***sia^{L}** [1] *there is/are (inan.)* ***siaŋ^{LH}** [2] *there is/are (an.)* **Oj** sia^{2} [1] sią^{2} [2] **U** sia^{3} [1] sją^{3} [2] **Tl** θya^{3} [1] θyą [2] **S** θya^{32} [1] (2 expected) θyą [2] **Tp** cia^{2} [1] cią^{2} [2] **Pa** cyi^{2} [1] cyą^{2} [2] **VN** cye [1] cyaŋ [2] **Oz** ča [1] čą [2] **Ll** ša^{3} [1] šen^{3} [2] **Lc** ša [1] šan [2] **To** ša [1] šan [2] **A** sa [1] san [2] **Le** ša^{3} [1] šay [2] (šey expected) **Qi** sah^{2} [1] (34 expected; post-vocalic h not expected in either **Qi** form) sęjh^{2} [2] (nasalization not expected) **Y** se [1] **Tm** sa [1] **Co** sia^{12} [1].

400 ***siá^{LH}** *beam (wood)* **Oj** ʔma^{2} sya^{3} **U** a^{2}ʔma^{3} sia^{43} **Tl** ma^{3}θyá^{3} **S** θya^{23} **Pa** ʔma^{2} cyí^{32} **Ll** šah^{2} **A** sa **Le** šá^{2}.

401 ***siaʔ** *plant, source* **U** o^{1}sieʔ^{32} **Tl** θyóʔ^{1} **Ch** θyoʔ **S** mi^{1}θyoʔ^{21} **Qe** ʔmi θyuʔ **Tp** cioʔ^{31} **Pa** cyúʔ^{1} **Ll** šo·ʔ^{31} (short vowel expected) **Lc** šaʔ **A** seʔ **Le** šaʔ **Y** seʔ *stalk.*

402 ***sia·^{LH}** [1] ***sia·ʔ** [2] *raise (inan.)* ***siá·ŋ^{LH}** [3] ***sia·ʔŋ** [4] *raise (an.)* **Oj** se^{31} ʔni^{2} [1] (tone 2 expected) seʔ^{31} ʔni^{2} [2] (the [2] forms of **Oj** and **S** reflect a short vowel) **U** sie^{3} [1] sję^{43} [3] **Ch** θyo [1] **S** θyoʔ [2] **Pa** cyo^{32} [1] cyow^{32} [3] cyúwʔ^{2} [4] **VN** cye [1] cyeʔ [2] cyaŋ [3] (may reflect a short vowel) **Ll** šo·^{32} [1] (tone 3 expected) šo·ʔ^{32} [2] ša·ʔn^{32} [4] **A** sa [1] **Le** šaʔ [2] **Qi** sah^{4} [1] **Y** seŋʔ [4].

403 ***sia·** [1] *mother (third person)* ~ ***sia** [2] *mother (first person singular)* **Oj** se^{1}na^{2} [1] **U** sie^{23} [1] sia^{34} [2] **Tl** θyo^{12} [1] θyą́^{2} [2] **Ch** θyo [1] θyą [2] **M** θya [1] (reflects a short vowel) **S** mi^{2}θyu^{12} [1] mi^{2}θya^{32} [2] **Tp** ciog^{31} [1] cia^{3} [2] **Pa** mi^{2}cyéw^{1} [1] mi^{1}cye^{3} [2] (cyi expected rather than cye) **VN** cyo [1] cya [2] (cye expected unless a person-marking suffix has affected the vowel quality) **Oz** čo [1] **Ll** šo·h^{2} [1] šen^{23} [2] **Lc** ša [1] **Pe** ša [1] **To** še [1] **RC** ša [1] šen [2] **A** sa [1] san [2] **Le** ša [1] šey [2] **Qi** sah^{12} [1] sah$^{2\text{-}1}$ [2] (vowel without h expected) **Y** sa [1] seŋ [2] **Co** sér^{12} [1] se·^{12}e [2] (long vowel expected in the first form and not in the second). The following forms are probably part of the same set but have developed differently because of their pretonic position: **Oj** si^{1}ʔye^{31}a^{2} *grandmother* sya^{1}hǫ^{2} *comadre* **U** si^{2}ʔd^{y}ie^{32} *grandmother* **Ch** di ʔyo *grandmother* **S** di ʔyo *grandmother* dya hǫ *comadre* **Pa** cyi^{1}hǫ^{31} *comadre* **Ll** ši^{2}ʔyo^{3} *grandmother* **A** si ʔye *grandmother* **Le** ša ya *grandmother* **Qi** si^{3}ʔyiah$^{2\text{-}12}$ *grandmother.* Some of these forms are the same as forms in the *si·(ʔ) *finger* set. They may be related sets or it may be that in some languages atonic forms of *si· and *sia· are alike.

404 ***sia·ŋ** *breathe, sigh* **S** θyǫ **Tp** ciǫ^{32} **Ll** ša·n^{23} **Lt** šeyʔ (final ʔ not expected) **Qi** saih^{23} **Co** siaŋ^{2} (se·iŋ expected). All languages employ a

construction in which *zɨ́^{LH} *heart* accompanies the verb.

405 ***sia·ŋ** *leap* **Pa** cyow^{32} **Ll** ša·n^{32}.

406 ***sia·ʔ^{H}** *(cock's)comb* **Pa** cyiʔ^{1} *hen* **Oz** čaʔ ʔya *hen* **Ll** šoʔ^{2} ʔnɨ·ʔ^{2} (reflects a syllable with accent) **To** šeʔ ʔnɨʔ **A** seʔ ʔnɨʔ.

407 ***sia·ʔ^{H}** *forked stick* **U** i^{1}sieʔ^{32} *between* (ie rather than the expected ia reflects a short vowel but the tone reflects a long vowel) **Tl** ma^{3}θyáʔ^{1} (accent not expected) **S** ʔma θyaʔ **Tp** ciąʔ^{31} (nasalization not expected) **Pa** cąʔ^{31} (cyiʔ^{1} expected; may not be cognate) **Ll** ʔmo^{3}šo·ʔ^{2} **To** ʔmo šeʔ **A** ʔmo seʔ **Le** ma ša šaʔ **Qi** ʔmo^{3} sahʔ^{42} **Co** ʔma^{12} se·ʔ^{21}.

408 ***sia·ʔ^{L}** *rubber, chewing gum* **Oj** syaʔ^{1} (tone 2 expected) **U** o^{1}syaʔ^{3} **S** θyáʔ^{2} (accent not expected) **Qe** θyaʔ **Pa** cyiʔ^{2} **Ll** šo·ʔ^{3} **Lc** šaʔ **To** šeʔ **A** seʔ **Le** šaʔ **Qi** sahʔ^{23} **Co** sé·ʔ^{12}.

409 ***sla·ʔ^{L}** *sheep* **U** a^{5}a^{3}siaʔ^{3} **Tl** ca^{3}θyaʔ^{4} **S** ha θyaʔ **Qe** haʔ θeʔ (ya expected; seems to reflect *e·) **Tp** háʔ^{2} ciaʔ^{2} **Pa** háʔ^{2} cyiʔ^{2} **VN** hoaʔ cyeʔ **Oz** waʔ čaʔ *hat* **Qi** ciʔ^{1} *small animal* (sahʔ^{23} expected; probably not cognate) **Co** ho·ʔ sé·ʔ^{12}.

410 ***slá·ʔ^{H}** *crab* **U** a^{4}siaʔ^{2} **Tl** θyáʔ^{1} **S** ci^{1}θyáʔ^{2} (tone 1 expected) **Qe** θeʔ (ya expected; seems to reflect *e·) **Tp** i^{1}ciáʔ^{1} **Pa** cyíʔ^{1} **Ll** šoʔ^{2} *crab, padlock* **Lc** šaʔ **Pe** šaʔ **To** šeʔ **A** seʔ **Le** šáʔ^{2} **Qi** sahʔ^{1} **Co** seʔ^{1} (accent expected).

411 ***sɨ·ʔ^{H}** *clothing* **Oj** sɨ^{1}ʔmɨʔ^{2} tɨ^{4}-yiʔ^{31} *shirt* (reduced in pretonic position) **U** a^{2}ʔụʔ^{3} sẹịʔ^{3} *pants* (32 expected; reflects *sɨ·ʔ) **Tp** nɨ^{1}cɨʔ^{31} *shirt* cɨ^{1}ʔmɨʔ^{2} *rags* (probably tone as well as vowel reduced because of pretonic position) **Pa** cɨʔ^{1} *shirt, ragged* **Ll** šɨ·ʔ^{232} *ragged clothes* (tone 2 expected; reflects *sɨ·ʔ) **Qi** sɨhʔ^{42} *shirt* **Y** sɨʔ *clothes* **Co** sɨ·ʔɨ *dress.* This set is probably related to *sɨ́^{H} *skirt* and perhaps to *hɨ *skirt.*

412 ***sɨ·ʔ^{L}** [1] ***sɨ·ʔ^{H}** [2] *bat, buzzard* (When distinguished, [1] is associated with the meaning *bat* and [2] with *buzzard.)* **Oj** ñi^{1}sɨʔ^{2} *bat* [1] **U** a^{1}ñi^{2}sẹgʔ^{3} *bat* [1] **Tl** ŋi θẹgʔ^{4} *bat* [1] **S** ŋi^{12}θɨʔ^{2} *bat* [1] **Tp** i^{1}cɨʔ^{2} *bat* [1] i^{1}tə^{2}cɨʔ^{31} *buzzard* [2] **Pa** ŋyi^{1}cɨʔ^{2} *bat* [1] **VN** tu sąɨʔ *buzzard* **Ll** tu^{3}sɨ·ʔ^{3} *buzzard* [1] **Qi** ñi^{2}sɨhʔ^{23} *bat* [1] **Co** ŋi sɨ·ŋʔ^{12} *bat* [1] (sɨ́·ʔ expected) tu·ʔ sɨ·ʔ^{21} *buzzard.* [2]

413 ***sɨ·ʔŋ** *wrinkled* **Tp** cɨʔ^{2} **Ll** sɨ·ʔn^{3} **Co** sɨ́ŋʔ^{12} *wrinkle (noun)* (long nasalized vowel expected).

414 ***sɨ·ŋ^{L}** *be called* **Oj** sɨ^{2} **U** sąɨ^{3} **Tp** cẹ^{2} **Pa** cẹ^{2} **VN** cyẹ? *(second person)* **Oz** čẹy **Ll** šɨ·n^{3} **A** sin (nasalization expected) **Le** šɨ·y^{3} **Qi** sih^{23} (the **Qi** and **Co** forms reflect *si·) **Co** si·r^{1} (tone 2 expected).

415 ***sụ** *straight, smooth* **Ll** sụhn^{2} (indicates final *ŋ) **Le** sụ. The following forms are probably related:

*sụ·ŋ *slip, slide* **Tp** cị^{32} **Pa** cǫ́^{3} **Ll** šu·n^{3} (reflects *iu· rather than *ụ·) **Co** sụ́iŋ^{2} (long vowel expected).

416 ***sú̧LH** *palm tree, coconut* **Oj** mɨ^{3}sǫ^{2} ho^{1} (tone 3 expected) **U** ụ^{4}sẹụ^{43} ho^{23} **Tl** θẹ́w^{3} *coyol* **Ch** ʔma θụ **S** ʔma^{2}θụ^{23} **Qe** θẹụ ho **Tp** mɨ^{2}cị^{32} **Pa** cị^{32} **VN** ʔma sǫ **Oz** ʔma sụ ñi **Ll** sụh^{2} **Qi** ʔmo^{3} sụʔ^{2} *tropical tree but not the coconut palm* (tone 3 expected but not final ʔ).

417 ***sụ·ŋHLH** *twin* **Oj** ca^{2}sǫ^{31} **U** a^{3}sạụ^{2} (reflects syllable with accent) **Tl** θẹw *twinned (fruit)* **Tp** gẹị^{2} cịʔ^{31} (tone fits a syllable with final ʔ) **Pa** cǫ^{2} (tone 1 expected) **Ll** sụ·n^{232} **Co** sụ·ŋ^{12}.

418 ***są̨L** *lie down!* **Oj** są^{3} ʔni^{2} **U** sạ^{4} **Tl** θạʔ (ʔ not expected) **Ch** θą **S** θą^{23} **Tp** cą́^{2} **Pa** cą́^{2} *(first person singular)* **Ll** sǫh^{3} **Le** są **Qi** sǫ^{24} **Co** są́^{2} (12 expected). Apparently a suppletive stem of *kia·L *lie down.*

419 ***sąʔŋ** *stick together* **Tp** rə^{2}cąʔ^{2} **Pa** cąʔ^{32} **Ll** sɨ^{3}sǫʔn^{2} **Co** sɨ sę́ʔ^{1}.

420 ***są·H** *grass* **Oj** sǫ^{31} **U** ma^{2}sǫ^{32} *malote* **Ch** θǫ **S** θǫ^{1} (tone 3 expected) **Pa** cąw^{1} **VN** sǫą **Oz** mo sǫ.

421 ***są·** *be pleasing* **Oj** sǫ **Tl** θẹ́w^{2}ceg^{3} **Ch** θǫ **M** θo (nasalization expected) **S** θą (reflects a short vowel) **Pa** cǫ^{2}.

422 ***są·ʔ** *termite* **U** a^{3}sąʔ^{4} **Tl** θaʔ (nasalization expected) **Ch** θą (final ʔ expected; vowel fits a syllable closed by ʔ) **S** θąʔ^{1} **Tp** i^{1}cąʔ^{31} **Pa** cąʔ^{1} **Oz** ča sǫʔ **Ll** sǫ·ʔ^{232} **Qi** sǫhʔ^{4} *large caterpillar-like worm* **Co** sǫ·ʔ^{21}.

423 ***siụL** *incense* **Oj** sị^{2} **U** sẹị^{3} **Tl** θị^{3} **Ch** θyụ **M** θyụ **S** θyụ **Qe** θẹị **Tp** cẹ^{2} **Pa** cyụ^{2} **VN** cyụ **Oz** čụ **Ll** šǫ̈^{3} **A** sǫ̈ **Le** šụ^{3} **Qi** sü^{34} **Co** sǫ̈^{12}.

424 ***siụ** *rub* **Tp** cị^{2} *apply by rubbing* **Pa** cẹ́w^{2} (the **Tp** and **Pa** forms reflect *sụ; may reflect a long vowel) cǫ́^{2} *(an. obj.)* (reflects a syllable closed by *ŋ) **Ll** šö^{32} (nasalization expected) **Co** sǫ̈·r^{2} (reflects a long vowel).

425 ***siụ·** *fry* **S** θẹị^{32} *he's going to fry* **Qe** θạị *cook* **Tp** cạg^{21} (reflects *sụ·) **Pa** cyą́w^{32} *(inan.)* cyǫ́^{2} *(an.)* (reflects syllable closed by *ŋ) **Ll** šǫ̈·^{32} **Qi** sụ̈h^{2} **Co** sǫ̈́·r^{21}.

426 ***siú·HLH** *deer (temazate)* **U** a^{5}sạị^{2} **Tl** θạy^{2} **Ch** θẹy **S** θẹị^{1} **Qe** θạị **Tp** i^{1}cẹị^{1} **Pa** cyąw^{1} **Ll** šǫ̈·h^{2} **A** sǫ̈ **Le** šụ **Qi** sụh^{242} (reflects *sụ·) **Co** sǫ̈·^{12}.

427 ***siụ·ʔL** *sharp* **U** sẹịʔ^{3} **Tp** ciʔ^{31} *raspy, scratchy* (reflects *su·ʔH; may not be cognate) **Pa** cyụʔ^{2} **Ll** šǫ̈·ʔ^{3} **Co** sǫ́·ʔ^{12}.

428 ***siąʔLH** [1]~***sąʔ** [2] *seize, grasp* **Oj** syąʔ^{2} ʔni^{2} [1] a^{4}sąʔ^{3} ʔni^{2} [2] **U** sịąʔ^{3} [1] sąʔ^{2} [2] **Tl** θyą́ʔ^{2} [1] (tone 4 without accent expected) **S** θyąʔ [1] **Tp** ciąʔ^{2} [1] cą́ụʔ^{2} [2] (ą expected) **Pa** cyịʔ^{32} [1] **VN** cye [1] (cyẹʔ expected) **Ll** šẹ·ʔ^{3} [1] rɨ^{23}sǫʔ^{23} [2] **Pe** šẹʔ [1] **To** šẹʔ [1] **A**

sę? [1] **Le** šą? [1] **Qi** sǫ?h^{3} [2] **Y** sąʔą [2] **Co** sęʔr^{2} [1] (long vowel expected) sǫ́·ʔr^{12}. The **Ll, Qi,** and **Y** forms suggest that the syllable was probably accented.

*h

429 ***hɨ**^{LH} [1] ***hi**^{LH} [2] *skirt (chapaneco)* **Oj** hi^{2} [2] **U** a^{2}hei^{3} [2] **Tl** hi [2] **S** hi^{3} [2] (32 expected) **Tp** ci^{1}hə́^{1} [1] **Pa** ʔmɨwʔ^{32} hɨw^{32} [1] **VN** hi [2] **Qi** ʔmɨʔ^{3} hɨ^{4} [1]. This set may be related to *sɨ́^{H} *skirt* and perhaps to *sɨ̨ʔ^{H} *clothing.*

430 ***hɨ** [1] *all (inan.)* ***hɨŋ** [2] *all (an.)* la^{4}hɨ^{4} [1] **U** la^{4}heg^{34} [1] la^{4}hąg^{34} [2] **Tl** la^{34}heg^{34} [1] **Ch** kalaheg [1] kalahęg [2] **M** lahɨ [1] **S** lahɨ [1] **Tp** ka^{2}le^{3}hə́^{3} [1] **Pa** ka^{3}laʔ^{3} hɨ́^{3} [1] ta^{1}hą^{2} [2] **VN** lihu [1] (ɨ expected) lihɨŋ [2] **Ll** la^{23}hɨ^{3} [1] la^{23}hɨn^{3} [2] **Le** lahɨ [1] **Qi** la^{3}hi^{2}lahʔ^{24} [1] (ɨ expected).

431 ***hɨ** *clean (state)* **Tl** heg **Ll** rɨ^{3}hɨh^{2}.

432 ***hɨ(ŋ)** *sloping* **Pa** cyi^{1}hɨ́^{1} **Ll** ǰi^{23}hɨn^{32}.

433 ***hɨ**^{LH} [1]~***hɨ́**^{L} [2] *clear land* **Oj** a^{4}hɨ^{2} ʔni^{2} [1] hi^{3} ʔni^{2} [2] **U** hag^{3} [1] **Tl** hag^{34} [1] háy^{2} [2] (tone 3 expected) **S** kwa^{1}haɨ^{2} [1] (32 expected) hei^{23} *(imperative)* [2] **Tp** hag^{32}[1] i^{2}héi^{2} [2] **Pa** hay^{32} *(present)* [1] hɨ́y^{2} *(past)* [1] héy^{2} *(motion)* [2] **VN** makahaɨ [1] **Ll** hɨ^{3} [1] hi·h^{3} [2] **Le** hɨ^{3} [1] ši^{3} [2] **Qi** hɨh^{4} *plow* [1] **Y** hi *plow (imperative)* [2] **Co** hɨ́^{12} [1] (tone 2 without accent expected) hí^{2} [2].

434 ***hɨ·** *Ozumacín, a Chinantec village* **Tp** ma^{2}hag^{32} **Pa** mu^{2}hay^{1} **Oz** mahɨ **Qi** ụ^{3}hɨh^{242}.

435 ***hɨ·ʔ**^{L} *horsefly* **Oj** hɨʔ^{2} **S** hɨʔ^{1} (tone 2 expected) **Tp** i^{1}hɨʔ^{2} **Pa** hɨʔ^{2} **Ll** hɨ·ʔ^{3} **Lt** hɨʔ **Qi** hɨhʔ^{4} (23 expected) **Co** hɨ́·ʔ^{12}.

436 ***hɨ·ʔ**^{L} *soap vine* **Pa** wɨ̨y^{2} mɨy^{2} hɨyʔ^{2} (ɨ expected rather than ɨy) **Ll** mɨ·^{31} mɨ^{2}hɨ·ʔ^{3}.

437 ***hɨ·ʔ** [1]~ ***hɨ·ʔ** [2] *weed, cultivate* **Oj** a^{4}hɨʔ^{2} ʔni^{2} [1] hiʔ^{2} ʔni^{2} [2] **Tl** hągʔ^{4} [1] (reflects a syllable with final *ŋ) háyʔ^{4} [2] **Ch** hagʔ [1] **S** heiʔ [2] **Tp** hɨ́ʔ^{32} [1] **Pa** hɨ́ʔ^{32} [1] (ɨy expected) heyʔ^{32} [2] **Ll** hɨ·ʔ^{23} [1] hi·ʔ^{32}ra^{2} [2] **Le** hɨ·ʔ^{4} [1] ši·ʔ^{42}a^{2} [2].

438 ***hɨ·ʔŋ**^{H} *thin (an.)* **Oj** hɨ̨ʔ^{31} (tone 1 expected) **S** hɨ̨ʔ **Tp** hɨ̨ʔ^{31} **Ll** hɨʔn^{2} (long vowel expected in **Ll** and **Lt**) **Lt** hɨyʔ **Qi** hɨihʔ^{42} **Co** hɨ·ŋʔ^{21}.

439 ***hə**^{H} *empty* **Oj** či^{1}hə^{1} **Ch** di hə **S** ma hɨe **Tp** rə^{2}hə́^{3} (tone 1 without accent expected) **Ll** ka^{23}he^{2} **A** mɨ he (ə expected) **Lt** ma he **Co** hə^{1}.

440 ***hə·** [1] *look at (inan.)* ***hə·ŋ** [2] *look at (an.)* **Oj** hə^{23}a^{2} [1] **U** he^{23} [1] **Tl** hə́^{3} [1] **Ch** hə [1] hę [2] **S** hɨe^{3} [1] hɨ̨ę^{1} [2] **Tp** hág^{32} [1] **Pa**

háy^{32} [1] hə́^{2} [2] **VN** ha [1] haŋ [2] **Oz** hɨ [1] hạ [2] **Ll** ho$^{\wedge.32}$ [1] ho$^{\wedge}$·n^{32} [2] **Lc** hə [1] **To** hə [1] **A** hə [1] **Le** ho·^{32} [1] **Qi** həh^{23} [1] **Y** hə? *you looked* [1] **Co** hə́·r^{2}.

441 ***hə·ʔ** *open up, untie* **Tp** hə́ʔ^{2} **Pa** hɨ́ʔ^{2} **Ll** he·ʔn^{3} (the **Ll** and **Le** forms reflect a palatalized variant *heʔ) heʔ^{23} (may be a better match) **Le** héʔ^{4} (long vowel expected) **Co** hɨʔ^{21} *mess up* (ə· expected).

442 ***hə́·ʔ^{H}** *grape* **U** ya^{1}gụ^{3} heʔ^{2} *grape vine* **Pa** gu^{2}hɨwʔ^{31} (tone 1 with accent expected) **Ll** mɨ^{2}hə?^{2} **Le** hoʔ **Qi** mɨʔ^{1} wụ^{2} həhʔ^{1} **Co** gwaŋʔ hə́ʔ^{1}.

443 ***hi** *(to) bark* **Oj** hi^{23} **U** hei^{23} **Tl** hí^{2} **S** hi^{23} **Tp** héi^{2} (the **Tp** forms for *bark* and *scold* seem to have been reversed with regard to vowel length) **Pa** hí^{2} **Ll** hi^{32} **Le** ši^{32}.

444 ***hiʔŋ** *rinse* **Pa** héʔ^{32} **Co** híŋʔ^{2}.

445 ***hi·^{H}** *bumblebee* **U** a^{2}hai^{32} **Tl** háy^{1} **Ch** toʔ hey **M** hei **S** he^{23} (hei^{3} expected) **Tp** i^{1}hei^{1} *hornet* **Pa** hey^{1} **VN** hei **Oz** ca hịʔ (hi expected) **Ll** hi·^{2} **Le** ši·^{2} **Qi** hih^{2}.

446 ***hi·** [1] *scold (inan.)* ***hi·ŋ** [2] *scold (an.)* **Tl** háy^{3} *(nonthird person object)* [1] hẹ́y^{3} *(third person object)* [2] **Tp** hí^{2} [1] **Pa** hí^{2} [1] hé^{2} [2] **Ll** hi·^{32} [1] hi·n^{32} [2] **Le** ši^{32} [1] (long vowel expected) **Co** hí·ŋ^{1} [2].

447 ***hi·ŋ** *left (side)* **Ch** hị **M** hạị **Tp** hẹ^{32} *left, inside out.* This set may reflect a nasalized vowel rather than a final nasal or perhaps both.

448 ***he^{H}** *balsa* **U** na^{2}ʔma^{3} he^{1} (tone 2 expected) **Tl** ma^{3}he^{2} **Ch** ʔma hɨe **S** ʔma^{2} hɨe^{21} (tone 1 expected) **Tp** ʔma^{2} hə^{1} **Pa** ʔma^{2} he^{1} **Ll** ʔmo^{3} he^{2} **Le** mɨ́yʔ^{3} he^{2} **Qi** ʔmo^{3} he^{2}.

449 ***he^{H}** [1] ***ha^{H}** [2] *where (rel. pro.)* **Oj** hi^{1} [1] (e expected) **U** he^{2} [1] **Ch** hi [1] (ɨe expected) **S** ha^{1} [2] **Tp** ha^{1} [2] **Pa** ha^{1} [2] **VN** ha [2] **Oz** ha [2] **Ll** he^{2} [1] **Co** hye^{1} [1] (he expected; probably reflects *hye).

450 ***héʔ^{LH}** *toad* **Oj** heʔ^{4} **U** a^{1}heʔ^{43} kwa^{1} **Tl** hə?^{4} **Ch** ya hɨʔ **S** hɨeʔ^{12} (23 expected) **Tp** i^{1}hə?^{31} (32 with accent expected) **Pa** heʔ^{32} **VN** haiʔ **Oz** ča heʔ **Ll** heʔ^{2} **Le** heʔ **Qi** heʔ^{3} **Co** heʔ^{2}.

451 ***he·^{HLH}** *between, among* **Oj** he^{31} **U** he^{1} *cornfield* **Tl** hə^{42} **Tp** hə^{21} (ag expected) **Pa** hɨw^{1} **Ll** he·^{232} **Le** he·^{42} **Qi** heh^{242} **Co** he·^{12}.

452 ***he·** *pant* **Ll** he·^{23} **Co** hé·^{2} *yawn.*

453 ***he·ʔ** *a kind of fish* **Pa** cyi^{1}heʔ^{2} *sand perch (guabina)* **Ll** he·ʔ^{2} *(dormilón)* **Qi** hehʔ^{42} *haddock (robalo).*

454 ***húʔ^{H}** *mosquito* **Oj** hu^{1} **U** a^{1}heu^{23} **Tl** hú^{1} **S** hu^{12} **Tp** i^{1}hí^{1} *gnat*

Pa hɨ́^{1} **VN** hu **Oz** ča hu **Ll** huh^{2} **Le** hú^{1} **Qi** hu^{1} **Co** hú^{1}.

455 ***hú^{H}** *Mayultianguis, a Chinantec village* **U** gua^{4}heu^{23} **Tl** wa^{3}hú^{1} **S** kwa hu **Tp** ko^{2}hɨ́^{1} **Pa** gu^{2}hɨ́^{1}.

456 ***huʔ^{H}** *room* **Oj** huʔ^{31} (tone 1 expected) **U** hauʔ^{32} kieʔ^{1} teg^{23} *school* **Ll** ka^{23}huʔ^{23} *room* ʔwi^{2}huʔ^{23} *corner* **Qi** huhʔ^{42} *corner* (short vowel expected in **Qi** and **Co**) **Co** hu·ʔ^{21} *corner.*

457 ***huʔŋ** *folded over* **Oj** na^{1}hǫ^{2} **U** hęu̯^{3} (may reflect a long vowel) **Ch** ru hǫ? **S** ma ra hǫ? **Tp** rə^{2}huʔ^{2} (**Tp, Pa, Qi,** and **Co** forms reflect a syllable with final *ŋ) **Pa** húʔ^{2} **Ll** rɨ^{3}huʔn^{2} **Lt** na huy? **Qi** hu^{4}ʔh^{2} **Co** huʔ^{21}.

458 ***húʔ^{LH}** *cheek* **Oj** lo^{2}huʔ^{4}a^{2} **U** ma^{3}hauʔ^{43} **Ch** hawʔ **S** hɨeʔ^{2} (23 expected) **Qe** heuʔ **Tp** rə^{2}húʔ^{32} **Pa** hoʔ^{32} (ow expected) **VN** hauʔ **Oz** mo huʔ **Ll** huʔ^{2} **Qi** huʔ^{3} **Co** lo huʔ^{2}.

459 ***hu·^{L}** *dove* **Oj** hu^{2}tą^{2} **Tl** haw^{3} **S** hu^{32} (tone 2 expected) **Tp** i^{1}hu^{2} **Pa** huw^{2} **Ll** hu·^{2} *great tinamou* (tone 3 expected) **Le** hu·^{3}.

460 ***hu·^{LH}** *putrid* **Tp** ma^{2}hu^{32} **Pa** ma^{2}huw^{32} **Ll** mɨ^{3}hu·^{3}.

461 ***hu·** *(to) lie, prevaricate* **Oj** hu^{1} tɨ^{2}hu^{1} *(noun)* **Tp** hág^{1} tə^{2}hág^{1} *(noun)* **Pa** tɨ^{32}húw^{1} **Ll** hu·^{32} *(verb)* u^{23}sɨ^{23}hu·h^{2} *(noun)* **Le** hu·^{32} **Co** hú·r^{21} hmɨ^{2}go·r^{1}.

462 ***hú·^{H}** *word* **Oj** hu^{1} **U** hau^{23} **Tl** háw^{1} **S** haɨ^{12} **Qe** heu **Z** hɨ **Tp** hág^{1} **Pa** hə́w^{1} **VN** hau **Oŋ** hu **Ll** hu·h^{2} **Le** hú·^{1} **Qi** huh^{1} **Co** hú·^{1}.

463 ***hú·^{H}** *possum* **Oj** hu^{1} **U** a^{2}hau^{23} **Tl** ca^{3}háw^{1} **S** ca haɨ **Z** ca hɨ **Tp** i^{1}ma^{2}hág^{1} cɨ̨ʔ^{31} **Pa** ma^{2}hə́w^{2} (the **Pa** nd **Ll** forms reflect *^{L}) **VN** ma hau **Oz** ma hu **Ll** mɨ^{23}hu·h^{3} **Le** hu **Qi** hụh^{1} *possum* huh^{1} *a different type of small animal* **Co** hú·^{1}.

464 ***hú·^{L}** *smock (huipil)* **Oj** sɨ^{1}mɨ^{2}hu^{3} **U** a^{2}ma^{3}hau^{4} **Tl** meg^{3}háw^{3} **S** ʔmɨ^{1}haɨ^{12} (the **S, Ll,** and **Le** forms reflect *^{H}) **Qe** ʔmɨ heu **Tp** cɨ^{1}ʔmɨʔ^{2} hú^{2} **Pa** ʔmɨʔ^{32} hó^{2} **VN** ma hau **Oz** mɨʔ hu **Ll** hu·h^{2} **Le** hú·^{1} **Qi** ʔmɨʔ^{3} huh^{3} **Co** ʔmɨʔ^{21} hú·^{2}.

465 ***hu·ʔ^{H}** *pineapple* **Oj** huʔ^{1} **U** ụ^{4}heuʔ^{32} **Tl** mág^{3} huʔ^{1} **Ch** hu (final ʔ expected) **M** ma huʔ **S** mɨ huʔ **Qe** heuʔ **Z** ma huʔ **Tp** mɨ^{2}huʔ^{31} **Pa** cyɨ^{1}hoʔ^{31} (tone 1 expected) **VN** mɨ hauʔ **Oz** mɨ huʔ **Qi** huʔ^{1} (the **Qi** and **Co** forms reflect a syllable with accent) (Vh expected) **Co** húʔ^{1}.

466 ***hu·ʔ^{L}** *deep* **Oj** huʔ^{4} (tone 2 expected) **U** heuʔ^{3} **Tl** huʔ^{1} (tone 4 expected) **Ch** huʔ **S** hɨeʔ^{3} *valley, stream* (reflects a syllable with accent; however, ɨe suggests a short vowel) **Qe** heuʔ *valley* **Tp** hɨʔ^{2} **Pa** hɨʔ^{2} **Ll** hu·ʔ^{3} *depression, valley* **Lt** huʔ.

467 ***hu·ʔ^{LH}** *a type of rodent* **Tl** huʔ^{4} **Tp** háʔ^{2} huʔ^{2} *mole* **Pa** sɨ^{1}huʔ^{32} **Ll** hu·ʔ^{3}.

468 ***hu·ʔ** *cough, cold* **Oj** ʔmo^{31} huʔ^{1} **U** heuʔ^{3} **Tl** hu^{42} (final ʔ expected in **Tl** and **Ch** forms) **Ch** di hu na *(verb)* **S** huʔ **Tp** húʔ^{2} *(verb)* **Pa** húʔ *(verb)* **Ll** hu·ʔ^{2} *(noun)* hu·ʔ^{32} *(verb)* **Le** huʔ^{32} *(verb)* **Qi** huʔ^{1} *phlegm* (Vh expected) **Co** húʔ^{1} *(noun)* húʔ^{2} *(verb)*.

469 ***haʔ** *mamey, a fruit of the zapote family* **Oj** ta^{2}haʔ^{1} (**Oj, Oz,** and **Ll** forms reflect a long vowel) **U** o^{1}to^{3}ta^{1}hoʔ^{5} **Tl** ta^{3}hóʔ^{1} **S** ta^{2}hoʔ^{21} **Tp** mɨg^{2} tə^{1}hóʔ^{21} **Pa** ta^{1}hoʔ^{31} *zapote* **VN** mɨ ta hoaʔ **Oz** mɨ ta haʔ *zapote* **Ll** mɨ^{31}ta^{1}ho·ʔ^{31} **Le** ta haʔ **Qi** ta^{2}hoʔ^{1} **Co** to·^{2}háʔ^{1}.

470 ***ha·^{L}** *cotton* **Oj** ho^{2} **U** o^{1}ho^{3} **Tl** hew^{3} **Ch** ho **M** ho **S** hó^{2} (accent not expected) **Qe** hau **Tp** nɨ^{1}hau^{2} **Pa** həw^{2} **VN** hao **Oz** ʔwa ho **Ll** ho·^{3} **Le** ha·^{3} **Qi** hoh^{23} **Co** ho·^{2}.

471 ***ha·** *side* **Oj** ho^{1} *side* ho^{1} ʔma^{2} *board, plank* **U** ho^{32}ʔma^{3} *board* **Tl** ho, hew **S** ho *side* ho ʔma *board* **Pa** haw^{31} *side* haw^{31} ʔma^{2} *board* **VN** hoa ʔma *board* **Ll** ho·^{31} *side* ho·^{31} ʔmo^{3} *board* **Le** ha **Qi** hoh^{23}. The following forms all meaning *half* are probably related: **Oj** tǫ^{4} ča^{2}ho^{2} **Pa** ka^{1}hó^{1} **Ll** ka^{3}ho·^{31}. It is possible that the following forms, although semantically more distinct, are also related: **Tp** ho^{2} *ample, with adequate space* (au expected because of the tone) **Pa** hu^{1} gúw^{3} *palm of the hand* **Ll** ho·^{3} *plain* he^{2} ho·^{31} *where it is flat* ho·^{31} gwo·^{3} *palm of the hand* **Lt** ha *plain* **Qi** hoʔ^{1} kwo^{34} *palm of the hand* (ʔ is marker of possesion).

472 ***ha·** *I cook* **Tp** ho^{32} **Pa** ho^{32} **Ll** ha·n^{23}.

473 ***ha·** *spread out* **Tl** hó^{2} **Tp** rə^{2}hó^{32} **Pa** hó^{32} **Ll** ho·^{32} **Le** ha·^{32}. The following set may be related: *haŋ *open, e.g., eyes, book* **Pa** hą^{32} **Ll** hən^{32} **Le** hay^{32}.

474 ***ha·** [1]~***hia·** [2] *break* **U** ho^{3} [1] hie^{2} [2] **Tl** ka^{34}hew [1] **S** ka ho [1] **Tp** hau^{2} [1] **Pa** həw^{2} *(past)* [1] hyéw^{3} *(fut.)* [2] **Ll** ka^{23}ho·^{3} [1] rɨ^{23}-hä·^{3} [2] **Qi** hoh^{4} [1] **Co** ka ho·^{1} [1].

475 ***ha·ŋ** [1] ***hia·ŋ** [2] *take (an. obj.)* **Tp** hiog^{32} *(first person object)* [2] (reflects a syllable without final *ŋ) hŋia^{32} *(third person object)* (reflects *hŋiaŋ) **Pa** húw^{2} *(intr.)* how^{32} *(tr.)* (both reflect [1]) **Ll** hən^{23} *take not to base* [1] hen^{23} *take to base* [2] (both forms reflect a short vowel) **Co** hé·ŋ^{12} [2].

476 ***há·^{H}** *coconut* **Oj** mɨ^{3}sǫ^{2} ho^{1} **U** ụ^{4}sẹụ^{43} ho^{23} **Qe** θẹụ ho **Ll** mɨ^{31}sụh^{1} ho·h^{2}.

477 ***há·^{HL}** [1] ***há·^{H}** [2] *day before yesterday* **Oj** ho^{4} [1] **U** ho^{23} [2] **Tl** hó^{2} [1] **Ch** ho **S** ho **Qe** hau **Tp** ho^{3} [1] **Pa** ma^{2}ho^{3} [1] **Oz** ho *yesterday* **Ll** mɨ^{23}ho·h^{2} [2] **Le** he **Qi** ʔyiah^{34} hoh^{1} [2] **Co** hó^{1} [2] (long vowel expected).

478 ***ha·ʔ^{H}** *worm* **Oj** se^{1}haʔ^{1} **U** a^{1}haʔ^{32} *maggot, fly* **Tl** haʔ^{1} **Ch** ha

(final ʔ expected) **M** haʔ **S** háʔ^{1} (tone 3 without accent expected) **Qe** ha moʔ (final ʔ expected) **Tp** i^{1}haʔ^{31} **Pa** haʔ^{1} **VN** hoaʔ **Oz** ča haʔ **Ll** ho·ʔ^{2} *maggot* **Qi** hohʔ^{42} **Co** ho·ʔ^{21}. The following forms are probably related: **Oj** haʔ^{1} *fly* **U** a^{1}haʔ^{32} *fly* **Tl** haʔ^{1} *insect* **S** haʔ *insect* **Ll** hoʔ^{3} *fly* (this form may belong to *há·ʔ^{L} *animal* in spite of its meaning) **Co** ho·ʔ^{2} hɨ^{12} *lightning bug* (21 expected). The following forms meaning *Mixe* are perhaps related: **Ll** ho·ʔ^{2} **Le** haʔ. The following set is probably also related to the preceding ones: *ha·ʔ^{H} *Tlacoatzintepec, a Chinantec village* **U** ma^{2}haʔ^{32} **Tl** ma haʔ^{1} **S** ma haʔ **Tp** ma^{1}haʔ^{31} **Pa** maʔ^{3} háʔ^{2} (tone 1 without accent expected).

479 ***ha·ʔ^{H}** [1] ***ha·ʔ^{L}** [2] *fist* **Oj** mɨ^{3}haʔ^{1} [1] **U** ụ^{4}haʔ^{3} [2] **Tl** haʔ^{4} [2] **S** haʔ^{3} [1] **Tp** haʔ^{2} [2] **Pa** háʔ^{2} [2] (accent not expected) **VN** hoaʔ **Oz** haʔ **Qi** hohʔ^{4} (probably [2]; if so, 23 expected) **Co** hó·ʔ^{12} [2].

480 ***ha·ʔ** [1] *how many? (inan.)* ***ha·ʔŋ** [2] *how many? (an.)* **Oj** haʔ^{4} [1] hạʔ^{4} [2] **U** a^{3}haʔ^{4} [1] a^{3}hạʔ^{4} [2] **Tl** háʔ^{3} [1] **S** haʔ [1] **Pa** háʔ [1] **Ll** hoʔ^{2} [1] həʔn^{2} [2] **Lt** hayʔ [2] **Qi** hohʔ^{42} [1] həihʔ^{42} [2] (aih expected) **Co** hó·ʔ^{12} [1].

481 ***há·ʔ^{L}** *animal* **Oj** haʔ^{3} **U** haʔ^{4} **Tl** háʔ^{3} **Ch** haʔ **M** haʔ **S** háʔ^{3} (accent not expected) **Qe** haʔ **Tp** háʔ^{2} **Pa** háʔ^{2} **Oz** sa haʔ **Le** háʔ^{3} *snake* **Ql** hohʔ^{34} **Y** hoʔ za *steer* **Co** hóʔ^{12}.

482 ***hiu·** [1] *blow (inan.)* ***hiu·ŋ** [2] *blow (an.)* **Oj** hi^{3} ʔni^{2} [1] **U** hai^{23} [1] **Tl** hí^{2} [1] **Ch** hi [1] **M** hi [1] **S** hyei^{32} [1] **Qe** kwa hyei [1] **Tp** héi^{2} [1] **Pa** hyéw^{2} [1] hyúw^{2} [2] **VN** hui [1] **Oz** hö [1] **Ll** hyö·^{32} [1] hyu·n^{32} [2] **A** hö [1] **Le** ši·^{32} [1] (seems to reflect *i rather than *iu) **Qi** xüh^{23} *(first person singular)* [1] **Y** xüʔ *(first person plural)* [1] **Co** hyö́·r^{2} [1].

483 ***hiu·ŋ** *delicate, fragile* **U** hẹụ^{3} *it will break* (reflects *u rather than *iu; ạụ expected) **Pa** hyúw^{3} *it will break* (hŋyo^{1} *fragile, weak* suggests a *hŋiu·ŋ alternant) **VN** hyụ *break* (hyuŋ expected) **Ll** hyu·hn^{3} **Le** hyu·y^{3} (š expected; perhaps the final y prevented the *hi > š development in this form) **Qi** xuih^{242} *child* **Y** hyun *child.*

484 ***hiu·ʔ^{H}** *armadillo* **Oj** hiʔ^{1} **U** a^{5}heiʔ^{32} **Tl** huʔ^{1} (the **Tl** through **Z** forms reflect *u· rather than *iu·) **Ch** hu (final ʔ expected) **M** huʔ **S** huʔ^{32} **Qe** heuʔ **Z** huʔ **Tp** i^{1}hiʔ^{31} **Pa** hyuʔ^{1} **VN** huiʔ **Oz** ča höʔ **Ll** hyö·ʔ^{2} **Pe** höʔ **To** höʔ **A** höʔ **Le** šiʔ^{2} (seems to reflect *i rather than *iu) **Qi** xühʔ^{42} **Co** hyö·ʔ^{21}.

485 ***hiu·ʔ^{L}** *snail* **U** hụ^{2}heiʔ^{4}, haʔ^{4} heiʔ^{3} (tone 3 fits the reconstruction) **Tl** ci^{3}huʔ^{4} (reflects *u·) **Ll** mɨ^{31}hyö·ʔ^{3} **To** mɨ höʔ **A** mɨ höʔ **Le** mɨ šuʔ **Lt** hyuʔ (the *hi > š shift may not have taken place in **Lt** in this environment).

486 ***hia^{LH}** *spider* **Oj** haʔ^{3} mi^{2}ya^{1} (initial h and tone 2 expected) **U**

a^{1}hia^{23} (tone 3 expected) **Tl** hyá^{4} **S** ci ha (reflects *a rather than *ia) **Qe** hya **Z** ca hya **Tp** i^{1}hia^{32} **Pa** cyi^{1}hyi^{32} **VN** mɨ hye **Oz** tą hö (**Oz** through **Qi** forms reflect a long vowel) **Ll** hä·^{3} **Le** he·^{3} **Qi** heh^{4} (this is the only example of *ia· after *h; eh may be the regular development after *h or the vowel may have been borrowed from a Comaltepec-type language, where e is the expected quality) **Co** hia^{2}.

487 ***hia** [1]~ ***ha** [2] *come (other than to base)* **Oj** hya^{23} [1] **U** hia^{23} [1] **Tl** há^{2} [2] **Ch** hya [1] **S** ha [2] **Tp** há^{32} [2] **Pa** hyí^{3} [1] há^{32} [2] **VN** hye [1] **Ll** mɨ^{3}hä^{3} [1] hoh^{2} [2] **Le** rí^{4}he^{3} [1] **Qi** ho^{2} [2] **Y** he [1] ha [2] **Co** há·r^{2} [2] (vowel quality reflects a short vowel in spite of the length).

488 ***hɨ^{LH}** [1]~***hɨ** [2]~***hu** [3] *set fire to* **Oj** a^{4} hɨ^{2} ʔni^{2} [1] hɨ^{1} ʔni^{2} [2] **U** hęg^{3} [1] **Tl** hęg^{4} [1] (accent expected) hɨ^{2} [2] hṹ^{3} [3] (nasalization not a part of the stem) **S** hɨ [1] **Pa** hɨ^{32} [1] hɨ^{2} [2] **VN** hu [3] **Ll** hɨ^{3} [1] hɨh^{3} [2] hun^{23} [3] **Le** hɨ^{3} [1] hɨ^{32} [2] hu^{4} [3] **Qi** hu^{4} [3] (nasalization not expected) **Co** hɨ^{21} [1] (tone 2 expected) hɨ^{2} [2].

489 ***hɨ^{HLH}** *deep, high* **U** hąg^{1} *long (hair), tall (corn)* **Tp** hąg **Pa** hąy^{1} **Ll** hɨ·n^{232} (reflects a syllable with final *ŋ).

490 ***hɨ·ʔ^{LH}** [1]~***hɨ·ʔ** [2]~***hu·ʔ** [3] *smell (tr.)* **U** hęgʔ^{3} [1] **Tl** hęgʔ^{4} [1] hęyʔ^{2} [2] hṹʔ^{2} [3] (nasalization not a part of the stem) **Pa** hɨʔ^{32} [1] hɨʔ^{32} [2] **Ll** hɨ·ʔ^{3} [1] hɨ·ʔ^{3} [2] hu·ʔn^{23} [3] **Le** hɨʔ^{3} [1] (long vowel expected in all **Le** stems) hɨʔ^{2} [2] huʔ^{4} [3] **Co** hɨ́ʔ^{2} [1] (long vowel but no accent expected in both **Co** stems) hɨ́ʔ^{1} [2].

491 ***hɨ·ʔ** *deliver* **Oj** hɨʔ^{31} ʔni^{2} **Tl** hągʔ^{2} (reflects a short vowel) **S** ka hɨęʔ **Tp** hą́gʔ^{32} (ɨ̨ expected) **Pa** hąyʔ^{32} *return someone else's property* (ɨ̨ expected) hęʔ^{2} *(an.)* (reflects a syllable closed by *ŋ) **Ll** hɨ·ʔ^{32} **Co** hą́ʔr^{2} (ɨ̨ expected).

492 ***hɨʔ** *where?* **Oj** a^{2}hɨʔ^{1} **U** hąɨʔ^{1} **Tl** hąyʔ^{42} **Ch** hɨ (final ʔ expected) **M** hąɨʔ **S** hɨʔ **Qe** hęɨʔ **Tp** a^{2}háʔ^{21} (ę is probably the expected reflex).

493 ***hɨʔ** *feel, think* **Tl** hąy (final ʔ expected) **Pa** hęʔ^{32} (may reflect a syllable with final *ŋ) **Ll** hɨʔ^{23}.

494 ***hɨʔ** *be alive* **Pa** hɨʔ^{1} **Ll** ri^{3}-hɨʔ^{23} **Co** hɨ́·ʔr^{12} (a short vowel expected).

495 ***hɨʔ** *sprout (noun)* **Pa** hɨ́ʔ^{2} **Ll** hɨʔ^{3}.

496 ***hɨʔŋ** *hiccough* **Oj** hɨʔ^{2} lo^{2} ci^{3}a^{2} **U** hąɨʔ^{2} **Ch** hɨʔ **S** hɨʔ **Pa** hę́ʔ^{2} **Ll** hɨʔn^{32}.

497 ***hɨ^{H}** *raft, bed* **Oj** hɨ^{31} **U** a^{2}ʔma^{3} hąɨ^{32} *raft* tag^{32} hąɨ^{32} *bed* **Tl** hąy^{4} **Ch** hęy (possibly hąy) **S** hę^{3} **Qe** hąɨ **Tp** ci^{1}hęɨ^{1} **Pa** hęy^{1} **VN** hęɨ **Oz** sa hɨ **Ll** hɨ·^{2} **Le** hɨ·^{2} **Qi** hɨh^{2} *beam* **Co** hɨ·^{1} *raft.*

498 ***hi·^{L}** *season* **U** hai^{3} **Ch** hi nyi *year* (the **Ch, Pa,** and **VN** vowels reflect the pretonic position) **S** he **Tp** heiʔ^{2} **Pa** hiʔ^{2} ŋyiʔ^{2} *year* **VN** hi ŋyi *year* **Ll** hi·^{3} **Le** hi **Qi** hih^{23} **Co** hi·^{2} *year.*

499 ***hi·^{L}** *dry season corn (tonamil)* **Tp** kuɨg^{2} heiʔ^{2} **Pa** kwɨy^{2} hiw^{2} **Ll** kwɨ·^{3} hi·^{3} **Co** kwɨ hi·^{1} (tone 2 expected).

500 ***hi·^{HL}** *mud, dirty* **Oj** hiʔ^{2} **U** haiʔ^{23} **Tl** háy^{4} **Ch** hey (possibly hay) **M** hi **S** he **Qe** hai **Tp** ti^{1}héiʔ^{3} *mud* (tone 2 without accent expected) **Pa** heʔ^{2} **VN** heiʔ **Oz** te hi *mud* **Ll** rɨ^{3}hi·ʔ^{3} *muddy (water)* (23 without final ʔ expected) **Lt** na hiʔ *muddy* **Qi** hih^{4} **Co** hí·^{12}.

501 ***hi·** [1] *turn, rotate (inan.)* ***hi·ŋ^{HL}** [2] *turn, rotate (an.)* ***hiʔ** [3] *turn (tr.)* **Tl** co^{34}ceg^{3} hay [1] hayʔ [3] **Tp** héʔ^{32} *(intr. an.)* [3] (the **Tp** and **Pa** forms may reflect a syllable with final *ŋ) **Pa** hey^{32} *(intr. an.)* [1] heʔ^{32} [3] **Ll** hi·^{232} [1] hi·n^{23} [2] **Le** hi·^{4} [1] **Co** hí·^{2} [1] hí·ŋ^{12} [2] hiʔ^{21} [3].

502 ***hi·** [1]~***hi·ŋ** [2] *meet (intr. ?)* ***hiʔ** [3]~***hiʔŋ** [4] *meet, unite (tr.?)* **Oj** nɨ^{2} hi^{3} hnaʔ^{1} *we'll see each other (leave-taking)* [1] **U** hei [1] (probably reflects a short vowel) haiʔ^{3} [3] **S** heʔ [3] (i expected) **Tp** heʔ^{2} [4] **Pa** he^{2} [2] héʔ^{2} [4] **Ll** rɨ^{2}hi·^{2}ra^{2} koʔ^{3} *we'll see each other (leave-taking)* [1] hi·n^{3} [2] rɨ^{3}hiʔn^{2} *joined* [4] **Le** za^{3}hí·^{3} *(tr.)* [1] **Co** di hmi hí·ŋ^{21} [2].

503 ***hi·ŋ** *spill* **Pa** he^{32} **Co** hí·ŋ^{12} *overturn.*

504 ***hi·ʔ^{L}** *sour* **Oj** hiʔ^{2} **U** heiʔ^{3} **Tl** hiʔ^{4} **S** hiʔ^{1} (tone 2 expected) **Tp** heʔ^{2} **Pa** hiʔ^{2} **VN** heiʔ **Ll** hi·ʔ^{3} **Pe** heʔ (may be a misrecording of hiʔ) **Le** hi·ʔ^{3}. This set may be related to at least the next two sets.

505 ***hi·ʔ^{L}** or ^{HL} *orange* **Tl** hiʔ^{4} **S** hiʔ to? *sour orange* **Qi** hihʔ^{4} (reflects *^{HL}) **Co** hí·ʔ^{12} (reflects *^{L}). This set may be related to *sour, guava,* and possibly *avocado.*

506 ***hi·ʔ^{L}** or ^{HL} *guava* **Oj** mɨ^{3}hiʔ^{2} *sweet guava* **U** u^{4}heiʔ^{3} **Ch** nyi hoʔ (the **Ch** and **S** forms reflect *haʔ) **S** nyi hoʔ **Pa** hiʔ^{2} (reflects *^{L}) **VN** heiʔ **Ll** ʔyo^{2}hi·ʔ^{23} *custard apple* (reflects *^{HL}) **Lt** hiʔ. This set may be related to the two preceding sets.

507 ***hi·ʔ** *avocado* **S** kwɨ hiʔ *sweet avocado* **Tp** kuɨg^{2} heʔ^{31} **Pa** mɨy^{3} gu^{2}hiʔ^{31} **Ll** mɨ^{31}ku^{1}hi·ʔ^{32} **Qi** kwo^{4}-hihʔ^{42}.

508 ***hi·ʔ** *Usila, a Chinantec village* **U** he^{1}heu^{3} heiʔ^{3} **Tl** híʔ^{2} **S** hiʔ **Tp** heʔ^{3} **Pa** hiʔ^{3} **Qi** hihʔ^{4}.

509 ***hi·ʔ** *(to) light a light* **Tl** hoʔ^{1} (reflects *haʔ) **Pa** hey^{32} (i expected) **Ll** hi·ʔ **Co** hi·ʔr^{21} hí^{12}.

510 ***hi·ʔ** [1] *offer (in.)* ***hi·ʔŋ** [2] *offer (an.)* **Tp** héʔ^{32} [2] **Pa** hiʔ^{32} [1] héʔ^{2} [2] **Ll** hi·ʔ^{32} [1] **Le** hi·ʔ^{32} [1] **Co** hiʔr^{2} [1] (long vowel expected).

511 ***hę^{H}** *dance (noun)* **Oj** hą^{1} **U** hą^{1} (tone 2 expected) **Tl** hą^{2} **Pa** hą^{1} **Le** hą^{2} **Qi** hą^{1} (tone 2 expected; may reflect a syllable with accent).

512 ***hụ^{L}** *seed* **U** hẹụ^{3} **Tl** hẹw **Ch** mo? hụ **S** hụ^{2} **Tp** mɨg^{2} họ^{2} **Pa** mɨy^{2} họ^{2} **VN** mɨ họ **Ll** mɨ^{31}hụ^{3} **Lt** mɨ hụ **Qi** hụ^{34} **Co** mɨ hú^{12} (accent not expected).

513 ***hụŋ** *die* **Oj** họ^{2} ?ni^{2} **U** hạụ^{2} **Tl** hạw^{2} **Ch** ma ka họ **S** ma họ **Tp** họ^{32} **Pa** hó^{3} **VN** ka họ **Ll** hụhn^{23} **Le** ma hụy **Co** hó·iŋ^{2} (ụiŋ expected).

514 ***hą^{H}** *tooth* **Oj** mɨ^{3}hą^{1}a^{2} **U** ụ^{4}hą^{2} **Tl** hą^{42} **S** hą^{1} **Tp** mɨ^{2}hą^{21} **Pa** hą^{1} **VN** mɨ hą **Oz** na hą **Ll** họ^{2} **Le** na^{1}hą^{2} **Qi** moh^{4}họ^{2} **Tm** mo hą **Co** mo hą^{1}.

515 ***hą^{H}** *feather* **Oj** hą^{1} **U** ą^{4}hą^{32} (tone appropriate to a long vowel) **Tl** hą^{2} **S** ci hą **Tp** ti^{1}hą́^{1} (forms in **Tp** and **Ll** reflect a syllable with accent) **Pa** hą **VN** hą **Ll** họh^{2} **Qi** họ^{2} **Co** hą^{1}.

516 ***hą^{LH}** *foam* **Oj** ri^{2}hą^{2} **U** o^{1}hą^{3} **Tl** hą^{3} (tone 4 with accent expected) **S** hą **Tp** hą^{32} **Pa** hą^{32} **VN** hą **Ll** họ^{3} **Qi** họ^{4} **Co** hą^{2}.

517 ***hą** *(to) boil* **Oj** ka^{3}hą^{3} **U** d^{y}a^{2}-hą^{34} **Tl** hą (^{2} ?) **S** ma ci hą **Tp** hą^{32} **Pa** hą^{32} **Ll** ka^{23}họh^{23} **Le** ?i^{4}hą́^{4}.

518 ***hąŋ^{L}** *one (an.)* **Oj** hą^{2} **U** hą^{3} **Tl** hą^{3} **S** hą^{2} **Tp** hą^{2} **Pa** hą^{2} **VN** hąŋ **Oz** hą **Ll** họn^{3} **Lc** hạn (may be a misrecording of họn) **A** họn **Le** hạy **Qi** hạị (34 expected) **Y** haŋ (nasalized vowel expected) **Co** ha·ŋ^{2} (a short nasalized vowel expected).

519 ***hą?** *guava* **Ch** nyi họ? **S** nyi họ?. Cf. *hị·? *guava.*

520 ***hą́?^{LH}** *onion* **Oj** yi^{1}hmi^{1} họ?^{3} *scallions* (reflects a syllable without accent) **U** ụ^{4}d^{y}a^{1} họ?^{43} **Tl** họ́?^{4} *wild greens (quelites)* **S** si kwu họ? **Qe** ci ku hạụ? **Tp** hą́?^{32} *wild greens* **Pa** ci^{1}hme hą?^{32} **VN** i hmi hạọ? **Ll** me^{2}họ?^{1} *wild greens* **Qi** họ?^{3} *wild greens, vegetables* **Co** hą?^{2}.

521 ***hą·^{HL}** *so, then* **Tl** họ^{3} (tone 4 with accent expected) **Tp** hạụ^{2} **Pa** hạw^{2} **Ll** họ·^{23}.

522 ***hą·^{HLH}** *word (nominal classifier)* **S** ka^{2}họ^{2} hai^{12} (tone 1 expected) **Qe** ka hạụ heu **Pa** ka^{2}hạw^{1} hə́w^{1} **Ll** ka^{3}họ·^{232} hu·h^{2} **Qi** hạịh^{242} (reflects a syllable with final *ŋ).

523 ***hą·** *sibling* **Ll** họ·h^{2} **Le** hą.

524 ***hą·** *inanimate referent* **Pa** hą́w^{3} **Ll** họ·^{23}.

525 ***hą́·^{LH}** *son, daughter* **Oj** họ^{31} ta^{2} *grinder (mano de metate)* yị^{2}họ^{2} *child* (tone 2 is the expected reflex) **U** a^{3}họ^{43} **Tl** họ́^{4} **S** họ **Qe** hạụ **Tp** hạụ^{32} **Pa** họw^{32} **VN** hạọ **Oz** họ **Ll** họ·^{31} (tone 2 with accent expected) **Le** hạ·y^{4} *(first person singular)* **Qi** họh^{43} **Y** hạ (ọ expected) **Co** họ́·^{21}.

526 ***hą·ʔ** *near* **Tl** ma hą? **S** ma hą? **Qe** ma ha? (nasalized vowel expected) **Oz** hą?.

*m

527 ***mɨ^{H}** *thick* **U** ṵ^{32} *thick (hair)* (2 expected) **Tl** meg **S** mɨ **VN** mɨ **Ll** mɨ^{2} **Lt** mɨ **Qi** mɨ^{2} **Co** mɨ^{1}.

528 ***mɨ^{LH}** [1] ***mɨ·^{LH}** [2] *ask for* **Oj** mɨ^{1} ʔni^{2} (2 expected) **U** ṵ^{3} **Tl** még^{2} ceg^{3} [1] **S** mɨ^{32} [1] **Tp** mɨ^{32} za^{2} [1] **Pa** mɨw^{32} [1] máy^{32} [2] (accent not expected) **Qi** mɨh^{4} [2] **Co** mɨr^{2} [1].

529 ***mɨ́^{L}** *woman* **Oj** ca^{2} mɨ^{3} **U** a^{3}ṵ^{4} **Tl** ca^{3} még^{3} **M** ca mɨ **S** ca^{2} mɨ^{3} (23 expected) **Tp** za^{2} mɨ́^{2} **Pa** mɨ́w^{2} **VN** za mɨ **Oz** za mɨ (a expected) **Ll** mɨh^{3} **Le** mɨ́^{3} **Qi** mɨ^{3} (24 expected) **Co** mɨ́^{12}. The following set is apparently related to the preceding one: *mɨ·^{HLH} *mother, girl* **Tl** mag^{42} *mother (vocative form)* **Ch** mag *girl* **S** mɨ^{1} *mother (vocative form)* (reflects a short vowel) **Tp** za^{2} mɨ^{21} *girl of marriageable age* (reflects a short vowel) mag^{31} *mother (vocative form)* (21 or 1 expected) **Pa** may *mother (vocative form)* **Ll** ši^{23}mɨ·^{232} *virgin* **Le** ši mɨ·^{42} *girl.* The following forms may form a part of this set: **Pa** ha^{1}máy^{31} *daughter* **Ll** hǫ^{23}mɨ·^{31} *daughter.* The following set is also related to this group of sets and especially the first one: *mɨ́ŋ^{L} *female* **Pa** mə́^{2} **Ll** mɨhn^{3}.

530 ***mɨ́^{LH}** *medicine* **Oj** ʔo^{2}mɨ^{3} **U** ṵ^{43} **Tl** még^{3} **S** mɨ^{23} **Tp** mɨ́^{32} **Pa** mɨ́w^{32} **VN** mɨ **Oz** ma **Ll** mɨ^{32} *herb curer* (2 with final h expected) **Le** mɨ^{3} (reflects unaccented syllable) **Qi** ʔoh^{23} mɨ^{2} (3 expected) **Co** mɨ·^{21} (accent but no length expected).

531 ***mɨʔ** *liver* **Tl** magʔ^{42} (tone reflects *^{H} and suggests that this set may be related to the following one) **Ch** mags (vowel reflexes of the **Ch** and **VN** forms suggest a syllable closed by *ʔ) **M** maʔ co **S** maʔ co **Tp** nɨ^{1}mɨ́ʔ^{32} za^{2} **Pa** mɨwʔ^{32} za^{2} **VN** maɨ.

532 ***mɨ́ʔ^{H}** *pill* **Qi** mɨʔ^{1} **Co** mɨ́ʔ^{1}.

533 ***mɨ́ʔ^{LH}** *ant* **Oj** mɨʔ^{4} **U** a^{1}ṵʔ^{43} **Tl** ca^{4}mágʔ^{4} **M** ma (final ʔ expected) **S** cyu maʔ **Qe** ca maʔ **Tp** i^{1}mɨ́ʔ^{21} (32 expected) **Pa** mɨwʔ^{31} (32 expected) **VN** maɨʔ **Oz** ča mɨʔ **Ll** mɨʔ^{2} **Le** mɨʔ **Qi** mɨʔ^{3} **Co** mɨʔ^{2}.

534 ***mɨ·^{L}** *hawk* **Oj** mɨ^{2} li^{1} **U** a^{2}ṵ^{3} **Tl** mag^{3} **S** maɨ^{2} **Tp** i^{1}mɨg^{2} **Pa** mɨy^{2} **VN** maɨ **Ll** mɨ·^{3} **Le** mɨ·^{3} **Qi** mɨh^{23} **Co** mɨ·^{2}.

535 ***mɨ́·^{L}** *ball, round object* **Oj** mɨ^{3} **U** ṵ^{4} **Tl** mág^{3} **S** maɨ^{23} **Tp** mɨ́g^{2} **Pa** mɨ́y^{2} **Ll** mɨ·^{31} (3 and a final h expected) **Le** mɨ·^{21} (3 and an accent expected).

536 ***mɨ́·^{HLH}** *tick* **Oj** sya^{1} mɨ^{31} yi^{2} **U** a^{1}si^{2}ṵ^{2} **Tl** mag^{2} **S** maɨ^{1} **Tp** i^{1}mɨg^{1} **Pa** may^{1} **VN** maɨ lao **Oz** ča mɨ **Ll** mɨh^{2} **Le** mɨ́·^{1} **Qi** mɨh^{242} **Co** mɨ·^{12}.

537 ***mɨ·ʔ^{L}** *basket* **Oj** sɨ^{1}mɨʔ^{2} **U** a^{2}ṵʔ^{3} ta^{23} **Tl** mégʔ^{4} (accent not expected) **S** mɨʔ ta *reed basket* **Tp** ci^{1}mɨʔ^{2} **Pa** mɨʔ^{2} **VN** maɨʔ **Ll** mɨ·ʔ^{3} **Lt** mɨʔ **Co** mí·ʔ^{12}.

538 ***mɨ·ʔ^{L}** *snake* **Oj** (sya^{1}) mɨʔ^{3} (2 expected) **U** a^{5}ṵʔ^{3} **Tl** mágʔ^{4} (accent not expected; the **Tl** and **S** forms reflect a short vowel) **S** maʔ^{23} (reflects an accented syllable) **Tp** zɨ^{2} mɨʔ^{2} **Pa** mɨʔ^{2} **VN** maɨʔ **Oz** mɨʔ **Ll** mɨ·ʔ^{3} hmɨ·^{3} *dragon (water snake)* **Qi** mɨhʔ^{23} **Co** mí·ʔ^{12}.

539 ***mə·^{H}** [1] ***mə·^{L}** [2] *leaf* **Oj** mo^{31} [1] **U** o^{1}ṵẹ^{32} [1] **Tl** mo^{12} [1] **S** mu^{21} **Qe** mo **Tp** mogʔ^{31} [1] (reflects syllable closed by *ʔ) **Pa** mu^{1} [1] muw^{2} [2] **VN** moa **Oz** wu mo **Ll** me·^{3} [2] **Le** me·^{3} [2] **Qi** moh^{23} [2] **Co** mo·^{2} [2].

540 ***mə·^{HL}** [1] ***mə·^{LH}** [2] *bone* **Oj** na^{1}mo^{2} [1] or [2] **U** na^{2}ṵẹ^{23} [1] **Tl** mo^{34} [2] **S** mu^{32} [2] **Qe** mo **Tp** nɨ^{1}mu^{32} [2] **Pa** mu^{2} [1] **VN** moa **Oz** na mo **Ll** me·^{23} [1] **Le** me·^{4} *egg* [1] **Qi** moh^{4} [1] or [2] **Co** mó^{12} [1] (long vowel expected).

541 ***mə́·^{HLH}** *flea, nigua* **Oj** či^{1}mo^{31} **U** a^{1}ṵẹ^{2} *flea* a^{1}ma^{2}kạṵ^{2} *nigua* (reflex of second form due to the pretonic position) **Tl** ci^{2}mew^{2} *flea* **Ch** ci mo **S** si^{2}mu^{1} **Qe** ci mo **Tp** i^{1}mu^{1} **Pa** mow^{1} **VN** mi (probably reflects a front vowel) **Ll** me·h^{2} **Le** me·^{2} (1 with an accent expected) **Qi** haih^{2} moh^{242} **Co** di^{2}mo·^{1} *flea* (12 expected).

542 ***mɨ·^{H}** [1] ***mɨ·** [2] ***mɨ·ʔ^{H}** [3] *elbow* **U** hṵʔ^{2} ma^{3}kue^{3} [3] (reflects accented syllable and initial *hm) **Tl** magʔ^{4} [3] (1 expected) **S** maʔ kwo co [3] (the **Tl** and **S** forms reflect a short vowel) **Tp** nɨ^{1}mɨʔ^{21} za^{2} [3] (31 expected) **Pa** mɨʔ^{1} [3] **VN** mɨ [2] (reflects a short vowel) **Ll** mi·^{2} [1] **Lt** mi [1] **Qi** mɨhʔ^{42} [3].

543 ***mí·^{H}** [1] ***mɨ·^{L}** [2] *plain* **Oj** mɨ^{2} [2] **U** ʔue^{5}ṵ^{3} [2] **Tl** mag^{3} [2] **S** ʔwe maɨ^{2} [2] **Tp** mɨg^{2} [2] **Pa** mɨy^{2} *level* [2] **Oz** he hwɨ mɨ *Valle Nacional, a Chinantec village* [2] **Ll** mɨ·^{3} [2] **Qi** mih^{1} [1] **Co** mí·^{1} *plain, Tuxtepec* [1].

544 ***mɨ·ʔ^{HL}** [1] *small (inan.)* ***mɨ·ʔŋ^{H}** [2] *small (an.)* **Oj** miʔ^{2} [1] **U** meiʔ^{3} *few* [1] maiʔ^{2} [2] (reflects accented syllable) **Tl** ca^{1} meyʔ^{2} *child* [1] (reflects an accented syllable; accent expected) miʔ^{1} [2] **S** miʔ **Qe** nyu meiʔ *boy* **Tp** meʔ^{2} [1] **Pa** miʔ^{2} [1] meʔ^{2} [2] (tone 1 expected) **VN** meʔ **Oz** miʔ **Ll** mi·ʔ^{2} [1] miʔn^{23} *young* [2] (the tones of the **Ll** forms seem to have been reversed; the tone of the [1] form reflects *^{H} and the tone of the [2] form reflects *^{HL} on an accented syllable).

545 ***mɨ·ʔŋ** [1] ***mɨ·ʔŋ** [2] *be ticklish* **U** ṵʔ^{32} [2] **Tl** méyʔ^{2} *tickle (with a third person obj.)* [1] (may reflect a syllable without final *ŋ) **Tp** ci^{1}-meʔ^{21} [1] **Pa** ci^{2}méʔ^{2} [1] **Ll** mi·ʔn^{23} [1] **Co** miŋʔ^{2} [1] (long vowel expected).

546 ***mí·ʔ^{L}** [1] ***mɨ́·ʔ^{L}** [2] *irritating, containing minerals* **Pa** mɨ́ʔ^{2} [2] **Ll** miʔ^{3} [1] **Qi** mɨhʔ^{23} [2] (the **Qi** and **Co** forms reflect an unaccented syllable) **Co** hmɨ^{2}mɨ́·ʔ^{12} [2].

547 ***mí·ʔ^{LH}** [1] ***mɨ́·ʔ^{LH}** [2] *wasp, hornet* **U** a^{1}ma^{2}ṵʔ^{3} [2] (reflects unaccented syllable) **Tl** mégʔ^{4} [2] **S** mu^{1} mɨʔ^{2} *wasp* [2] **Tp** si^{1}méʔ^{32} *wasp* [1] **Pa** miʔ^{32} *red wasp* [1] **Ll** mi·ʔ^{32} [1] **Ql** hohʔ^{34} mihʔ^{3} [1] **Co** miʔ^{2} [1].

548 ***mé·^{LH}** *cane liquor* **Oj** ma^{2} *cane* (the **Oj, U, Ch,** and **M** forms reflect a short vowel) **Tl** mó^{4} **Ch** ma cyei **M** ma **S** mú^{2} (accent not expected) **Qe** mo **Ll** me·h^{2} **Le** mé·^{2} *liquor distilled from the century plant* **Qi** mah^{43} **Co** mé·^{21}.

549 ***ma** *mother* **U** ma^{43} *grandmother* **VN** ma *mother (vocative form)* **Oz** ma *mother (vocative form).*

550 ***má^{HL}** [1] ***má^{LH}** [2] *food* **Oj** ma^{4} [1] **U** ma^{34} [1] **Tl** ma^{34} [2] (reflects a long vowel) **S** ma^{32} [2] **Tp** má^{3} [1] (the accent of the **Tp** and **Pa** forms not expected) **Pa** má^{3} [1] **VN** ma **Oz** ma **Ll** moh^{2} [2] (reflects accented syllable) **Lt** ma.

551 ***ma·^{LH}** *Tepinapa, a Chinantec village* **Pa** ku^{32}mow^{3} **Oz** gu mo **Ll** ku^{3}mo·^{3}.

552 ***ma·^{HLH}** *turtle* **Oj** hu^{2}mo^{31} **U** a^{2}hau^{3} ṵẹ^{1} **Tl** huʔ^{1} mo^{4} (42 expected) **Ch** ku mo **S** hu mu **Qe** hu mo **Tp** háʔ^{2} mu^{21} **Pa** haʔ^{3} u^{2}mow^{1} **VN** hu moa **Ll** ku^{3}mo·^{232} **Lt** hu ma **Qi** ha^{2}moh^{242}.

553 ***má·^{LH}** *maguey* **S** mú^{2} (accent not expected) **Tp** ci^{1}mu^{32} **Pa** cyúʔ^{1} mow^{32} **Ll** šo·ʔ^{31} mo·h^{1} **Qi** moh^{43} **Co** má·^{21}.

554 ***má·^{LH}** *boat* **Oj** mo^{2} **U** a^{2}ṵẹ^{43} **Tl** mó^{4} **S** mú^{2} (accent not expected) **Qe** mo **Tp** cɨ^{1}mu^{32} **Pa** mow^{32} **VN** mo **Oz** wu mo **Ll** mo·h^{2} **Lt** ma **Qi** moh^{43} **Co** mó·^{21}.

555 ***ma·ʔŋ^{LH}** [1] ***ma·ʔŋ^{H}** [2] *stalk (of bananas)* **U** ṵẹʔ^{2} [2] (seems to reflect a short accented syllable) **Tp** ʔmuʔ^{2} [1] (preconsonantal glottal not expected) **Pa** moʔ^{32} [1] **Ll** ma·ʔn^{3} [1] **Co** ma·ŋʔ^{21} [2].

556 ***má·ʔ^{L}** *squash* **Oj** maʔ^{3} **U** o^{1}maʔ^{4} **Tl** máʔ^{3} **S** ci^{2}maʔ^{3} **Tp** nɨ^{1}máʔ^{2} **Pa** máʔ^{2} **VN** moaʔ **Oz** mɨ moʔ **Ll** mɨ^{31}moʔ^{3} **Le** maʔ **Qi** mohʔ^{34} **Co** móʔ^{12}. The following forms probably belong to the same set: **U** ṵ^{4}hd^{y}ei^{1} ma^{4} *jícama, an edible tuber* **Tl** si^{2}ma^{3} *yuca-like tuber* (final ʔ expected) **Ch** ci maʔ *jícama.*

557 ***má·ʔ^{L}** *mountain* **Oj** maʔ^{3} **U** a^{2}maʔ^{4} **Tl** máʔ^{3} **S** maʔ^{3} **Tp** máʔ^{2} **Pa** máʔ^{2} **VN** moaʔ **Oz** moʔ **Ll** moʔ^{3} **Le** máʔ^{3} **Qi** mohʔ^{34} **Co** móʔ^{12}.

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558 ***nɨʔ^{HL}** *grasshopper* **Oj** naʔ^{2} (ɨ is expected, but it is possible that a is the regular reflex of *ɨ after *n in **Oj**) **U** a^{1}nagʔ^{3} **Tl** nagʔ^{4} **S** naʔ **Tp** i^{1}nɨʔ^{2} **Pa** cyi^{1}nɨʔ^{2} **Ll** nɨʔ^{2} *wasp.*

559 ***nɨ́^{LH}** *mushroom* **Oj** mɨ^{3}na^{1} (ɨ is expected and tone 2; cf. *nɨʔ^{HL} *grasshopper*) **U** a^{1}ma^{3}nag^{43} **Tl** meg^{2}-nág^{4} **S** mana^{2} **Tp** nɨ^{1}nag^{32} **Pa** nay^{32} **VN** naɨ **Ll** mɨ^{2}nɨ·h^{2} **Le** nɨ́^{2} **Qi** nɨh^{43} **Co** nɨ·^{21} (accent expected).

560 ***nə^{LH}** *that* **Oj** nɨ^{2} **U** i^{4}ne^{3} **Tl** né^{2} (4 expected) **S** nɨ **Tp** nə^{32} **Pa** ná^{32} (accent not expected) **VN** a ne **Oz** e na **Ll** nɨ^{3} **Le** nɨ^{3} **Qi** ʔe^{2}no^{4} **Co** ʔe na^{12} (2 expected).

561 ***nə́^{HL}** *now* **Oj** na^{4} **U** ne^{34} **Tl** né^{2} **S** ne **Tp** nə^{3} **Pa** na^{3} **VN** ne **Ll** rɨ^{3}nɨ^{23} (final h is expected) **Le** hạ nɨ **Qi** no^{12}no^{12} (34 expected) **Co** la^{2}ná^{12} (2 expected).

562 ***niʔ^{H}** *face* **Oj** ñi^{1}a^{2} **U** ma^{3}nei^{2} **Tl** ni^{2} **Ch** ni **M** ma nyi hna *my eye* **S** nyi^{1} **Tp** zɨ^{2}ne^{21} **Pa** ni^{1} **VN** ni **Oz** mo nen **Ll** ñi^{2} **Le** ñi^{2} **Qi** ni^{2} **Co** ni^{1} (The **Oj, U, Tl, Pa,** and **Co** forms also mean *on.*).

563 ***ní^{L}** *sit (imperative)* **Oj** ñi^{3} **U** nei^{4} **Tl** ní^{2} (3 expected) **Ch** ni **S** nyi^{23} **Tp** né^{2} **Pa** ní^{2} **Ll** ñih^{3} **Le** ñi **Qi** nih^{24} (h not expected) **Co** ní·^{12} (length not expected).

564 ***niʔŋ** [1] ***ne·ʔŋ** [2] *I am going home* **U** naiʔ^{23} [1] **Tl** niʔ^{1} [1] **Ch** neʔ [1] **S** ma nyiʔ na [1] **Tp** néʔ^{21} [1] **Pa** neʔ^{31} [1] **Ll** ñe·ʔn^{23}na^{23} [2] **Le** mɨ ñaʔa [2] **Qi** neihʔ^{42} [2] **Co** ninʔ^{2} [1]. This set is probably related to the following one.

565 ***ni·** *I go* **Oj** ñi^{31} **U** nai^{32} **Tl** nay^{42} **Ch** ney **M** nyei **S** nye^{2} **Qe** nyai **Tp** nei^{31} **Pa** ney^{31} **VN** nei **Oz** nɨ **Ll** ñi·n^{23} **Qi** nih^{4} **Co** ni·^{12}. This set is probably related to the preceding one.

566 ***ni·** *flat* **U** nai^{2} **Ch** ney.

567 ***ni·** *inside* **Ch** ney **M** nyei **Pa** zyi^{2}néy^{2} **VN** tɨ li ni (**VN** and **Oz** forms may reflect a short vowel) **Oz** ne.

568 ***ni·ʔ** *stretch* **U** ñeiʔ^{2} (n expected) **Tp** néiʔ^{32} **Pa** neyʔ^{32} **Ll** sɨ^{3}ñi·ʔ^{3} **Qi** nihʔ^{212} (ʔ expected) **Y** niʔ *we will stretch* **Co** ní·r^{21} (ʔ expected).

569 ***ne** *we know* **S** ne^{1} hnoʔ^{1} **Tp** ne^{21} **Ll** ne^{3}ra^{2} **Y** ne eʔ **Co** ne·^{1}naʔ (long vowel not expected).

570 ***núʔ^{H}** *covering vegetation* **Tl** náwʔ^{1} *overgrown cornfield* **Tp** kuɨg^{2} nəʔ^{31} *corn in the husks* **Pa** hɨ^{1} níʔ^{1} *overgrown cornfield* **Ll** kwɨ·^{3} nuʔ^{2} *corn in the husks* he^{2} nuʔ^{2} *overgrown cornfield.*

571 ***nu^{L}** *vegetation* **Oj** hi^{1}no^{2} *jungle* **U** he^{1}nau^{3} *jungle* **Tl** lo^{2}naw^{3}

rabbit M nau S nyi^{1}nai^{2} *jungle* Qe kua neu *deer* Tp nau^{2} Pa hɨ^{1}nuw^{2} *jungle* VN nau Oz wa nu Ll nu$^{\cdot 3}$ Le nu$^{\cdot 3}$ Qi nuh^{23} Co nu$^{\cdot 2}$.

572 ***nu·** *peccary* Oj ñi^{3}no^{2} U a^{1}-ñi^{43}nau^{3} Ch nyi naw S mi^{2}nyi^{23}naɨ^{3} Qe mi neu Tp ŋí^{32} náu^{3} Pa ŋyé^{32} núw^{3} VN nyi nau Ll i^{23}nu·h^{2} Le ñi nu Qi ñi^{3}nu^{34} (Qi and Co forms reflect a short vowel) Co ŋi^{2}nu^{12}.

573 ***nu·** [1]~***niu·^{L}** [2] *hear* Oj ʔa^{4} no^{3} ʔni^{2} [1] ni^{2} ʔni^{2} [2] U nau^{3} [1] nai^{3} [2] Tl naw^{34} [1] Ch naw [1] ney [2] M nau [1] S naɨ [1] Qe kua neu [1] Tp nag^{32} [1] Pa naw^{32} [1] new [2] VN nau [1] nui [2] Ll nu$^{\cdot 3}$ [1] nö$^{\cdot 3}$ [2] Lt ga nu [1] ñu [2] Qi nuh^{1} [1] Co nu·r^{1} [1].

574 ***na·^{H}** *fern* Tl meg new S ma^{2} no^{12} (3 expected) Pa ma^{1}naw^{1} Ll no$^{\cdot 2}$ Qi ụ^{2}noh^{2} Co mɨ^{2}no$^{\cdot 1}$.

575 ***na·^{L}** Zapotec U a^{2}no^{3} S nó^{2} (3 expected) Qe no Tp za^{2} nau^{2} Pa nəw^{2} Oz za no Ll za^{3} no$^{\cdot 3}$ Le za^{3} na$^{\cdot 3}$ Qi noh^{23} Co no$^{\cdot 2}$.

576 ***na·^{HLH}** *lard, fat* Oj no^{31} U o^{1}no^{1} Tl no^{42} S no^{1} Qe nau Tp ti^{1}no^{1} Pa naw^{1} VN noa Ll no$^{\cdot 232}$ Le na$^{\cdot 42}$ Qi noh^{242} Co no$^{\cdot 12}$.

577 ***na·** *stand* Oj no^{2} ʔni^{2} U no^{2} Ch ka no S ka no Qe no Tp nau^{2} Pa nu^{2}, nó^{3} VN ka nao Ll no$^{\cdot 3}$ Qi noh^{4}.

578 ***ná·^{LH}** *rat* Oj sya^{1}no^{2} U a^{1}no^{43} Tl nó^{4} S no^{2} Qe nau Tp i^{1}nau^{31} (32 expected in Tp and Pa) Pa naw^{31} VN nao Oz ča no Ll no·h^{2} Lt sɨ na Qi noh^{43} Co nó$^{\cdot 21}$.

579 ***na·ʔ^{H}** *net* Oj sɨ^{1}naʔ^{1} U a^{2}naʔ^{2} (31 expected) Tl naʔ^{1} Ch na (ʔ expected but vowel reflects closed syllable) S naʔ Tp ci^{1}naʔ^{31} Pa naʔ^{1} Ll no·ʔ^{2} Le naʔ Qi nohʔ^{42} Co no·ʔ^{21}.

580 ***niu** *soap* Oj ñi^{1}to^{2} Tp nɨ^{1}-ʔau^{2} Pa nyu^{32} VN nyu Oz nö Ll ši^{2}nö$^{\cdot 23}$ (short vowels expected in Ll, Le, and Co) Le ñu$^{\cdot 4}$ Qi nü^{3} Co nö$^{\cdot 21}$.

581 ***niu·^{L}** [1] ***niu·ʔ** [2] *become night* Oj ti^{4}ka^{3}ni^{2} *night* [1] U nai^{3} *night* [1] naiʔ^{2} *dark* [2] Tl nay^{3} [1] Ch ka ma ney [1] S ka^{3}nei^{2} [1] Qe he nai [1] Z ma nei [1] Tp ka^{2}nei^{2} [1] Pa new^{2} *dark* [1] nyoʔ^{3} [2] VN ma nui [1] te le nyu? *early morning* [2] Oz ga ñu [1] (ö expected) Ll nö$^{\cdot 3}$ [1] mɨ^{3}nö·ʔ^{2} *be overtaken by nightfall* [2] Le ma ñu [1] Qi ka^{3}nüh^{23} [1] Co ka^{1}nö$^{\cdot 2}$ [1].

582 ***niú·^{LH}** *star* Oj ni^{2} U ha^{4}ʔnai^{43} (initial ʔ not expected) Tl náy^{4} Ch ney M nai Qe nai Tp nei^{32} Pa new^{32} VN nui Oz či nö Lc ni ʔa Pe ni ʔa To ni ʔą RC nö ʔa A nö ʔa Le ñu ʔę Qi nüh^{43} Co nố^{21} (long vowel expected).

583 ***niú·ʔ^{HL}** *inside* Oj ñiʔ^{4} U ta^{4}naiʔ^{5} Tl náyʔ^{3} Ch neyʔ S nyeʔ Qe nyaiʔ Tp néʔ^{3} *under* Pa nyúʔ^{3} VN nuiʔ Oz ǰe neʔ Ll ñöʔ^{23} *inside, under* Le ñú·ʔ^{4}.

584 ***nia** [1]~***na** [2] *open* **Oj** na^{31} ʔni^{2} [2] **U** nia^{1} [1] **Tl** nyá^{2} [1] **S** na ʔnyu [2] **Qe** nya ʔnyi [1] **Tp** niá^{32} [1] **Pa** nyí^{32} [1] ka ná^{2} [2] **VN** ne [1] **Oz** ne [1] **Ll** ne^{32} [1] rɨ^{3}no^{2} [2] **Lt** ña ñu [1] **Qi** noh^{24} [2] (h not expected) **Co** nar^{2} [2].

585 ***niáʔ**^{H} *image, copy* **U** nioʔ^{5} (2 expected) **Tp** nióʔ^{1} **Pa** nyóʔ^{1} **Ll** neʔ^{2}.

586 ***nia·**^{H} *chico zapote, a type of fruit* **Oj** ta^{2}ne^{31} **U** ṵ^{4}ta^{3}nie^{32} **Ch** tanyo **S** ta^{3}no^{23} (ny and tone 3 expected) **Tp** mɨ^{2}táʔ^{32} nio^{21} **Pa** ta^{2}nyaw^{1} **Oz** mɨtanö **Ll** mɨ^{31}toʔ^{1} ne·^{2} **Lt** taʔ ña **Qi** to^{3}nah^{3} (2 expected).

587 ***nia·** *be snagged* **Pa** nyáw^{32} **Ll** ne·^{32}.

588 ***niá·**^{L} [1] *yellow (inan.)* ***niá·ŋ**^{L} [2] *yellow (an.)* **Oj** ne^{3} [1] na^{3} [2] **U** nie^{4} [1] **Tl** meg^{3}nyew^{3} [1] (accent expected) **Ch** nyo [1] **M** ni [1] **S** mi^{3}nyó^{23} [1] (accent not expected) **Qe** mi nyu [1] **Tp** nio^{21} [1] (tone 2 with accent expected) **Pa** néw^{2} [1] nyó^{2} [2] **VN** no [1] (ny expected) nyoŋ [2] **Oz** nö [1] **Ll** ne·h^{3} [1] ne·hn^{3} [2] **Le** ñá·^{3} [1] **Qi** nah^{3} [1] **Co** né·^{2} [1].

589 ***niá·**^{LH} *be in, on* **S** nyo^{2} **Tp** ne^{21} (io and tones 32 expected) **Pa** new^{32} **Ll** ne·h^{2}.

*ŋ

590 ***ŋɨ** *walk* **Oj** ŋɨ^{1} ʔni^{2} **U** ŋeg^{23} **Tl** ŋég^{2} **S** maŋɨ **Tp** ŋɨ^{32} **Pa** ŋɨw^{32} gu^{3}ʔey^{32} *run* **VN** ŋɨ **Ll** ŋɨh^{3} **Qi** ŋɨh^{4} (h not expected) **Co** ŋɨr^{2}.

591 ***ŋɨ** *Choapan, a* Zapotec town **Ll** mɨ^{23}ŋɨh^{3} **Le** mɨŋɨ.

592 ***ŋɨŋ** *pass* **U** ŋag^{34} *pass it!* **Tp** ŋɨ^{32} **Pa** ŋə́^{32} **Ll** ŋɨhn^{3} **Co** ŋɨiŋ^{21}.

593 ***ŋɨŋ** *understand* **U** ŋag^{4} **Tl** ŋég^{3} **S** ŋɨ **Tp** ŋɨʔ^{2} (the **Tp** and **Co** forms reflect a syllable closed by *ʔ) **Pa** ŋə́^{2} **Oz** ŋɨn *(first person singular)* **Co** ŋɨiŋʔ^{2}.

594 ***ŋɨ́**^{H} *illegitimate* **Pa** ŋɨ́^{1} **Ll** ʔɨ^{23}ŋɨh^{2}.

595 ***ŋɨ́**^{L} *chayote* **Oj** rɨ^{2}nɨ^{3} (ŋ expected) **U** o^{1}ŋeg^{4} **Tl** ra^{3}ŋég^{3} **M** huŋɨ **S** ŋɨ^{23} **Tp** nɨ^{1}ŋɨ^{2} **Pa** ŋɨ́w^{2} **VN** maŋɨ **Oz** ŋɨ **Ll** mɨ^{31}ŋɨ^{3} (final h expected) **Qi** ŋɨ^{24} **Co** ŋɨ́^{12}.

596 ***ŋɨ·** *laugh* **Oj** ŋɨ^{3} ʔni^{2} **U** ŋeg^{23} (ag expected) **Tl** ŋág^{3} **S** ŋaɨ^{23} **Tp** ŋág^{2} **Pa** ŋɨ́y^{2} **VN** ŋaɨ **Ll** ŋɨ·^{32} **Le** ŋɨ **Qi** ŋɨh^{23} **Co** ŋɨ·r^{2}.

597 ***ŋɨ·** *ask* **Oj** ŋɨ^{31} ʔni^{2} **U** ŋag^{4} **Tl** ŋág^{4} **S** ŋa **Tp** ŋag^{32} **Pa** ŋay^{32} **Ll** ŋɨ·^{23} **Lt** ŋɨ **Qi** ŋɨh^{2} **Co** hmɨŋɨ·^{1}.

598 ***ŋɨ·** *strain, sift* **Tp** ŋɨ́^{2} (the **Tp** and **Pa** forms reflect a syllable closed by *ŋ) **Pa** ŋə^{32} **Ll** ŋɨ·h^{3} **Qi** ŋɨh^{212} **Co** ŋɨ·r^{21}.

599 *ŋi^{H} *salt* **Oj** sɨ^{1}ñi^{1} **U** o^{1}ñi^{2} **Tl** ŋi^{2} **Ch** nyi **M** nyi **S** nyi^{1} **Qe** nyi **Tp** ci^{1}ŋi^{1} **Pa** ŋyi^{1} **VN** ŋyi **Oz** wuñi **Ll** hwɨ^{2}ñi^{2} **Le** fɨ·ʔ^{42} ñi^{2} **Qi** ñi^{2} **Co** ŋi^{1}.

600 *ŋi^{H} *smoke* **Oj** hmɨ^{2}ñi^{1} **U** o^{1}ñi^{32} (2 expected) **Tl** meg^{3}ŋi^{2} **Ch** hmanyi **M** hminyi **S** mi^{2}nyi^{1} **Qe** minyi **Tp** hme^{1}ŋi^{1} **Pa** hmi^{1}ŋyi^{1} **VN** ŋyi **Oz** uñi **Ll** ñi^{2} **Le** ñi^{2} **Qi** u^{1}ñi^{2} **Co** hmi^{2}ŋí·^{1} (short vowel without accent expected).

601 *ŋl^{H} [1] *ŋí^{H} [2] *bat* **Oj** ñi^{1}sɨ^{2}ʔ^{2} **U** a^{1}ñi^{2}sɛ̨g^{3}ʔ^{3} [1] **Tl** ŋiθegʔ^{4} **S** nyi^{12} [2] **Qe** nyiθə̨ʔ **Tp** háʔ^{2} ŋí^{1} [2] **Pa** ŋyicɨʔ **VN** ŋyisə̨ɨʔ **Le** ñi **Qi** ñi^{2}sɨh^{2}ʔ^{23} [1] **Co** ŋisɨ·ŋʔ^{12}.

602 *ŋi^{L} *year* **Oj** ñi^{2} **U** ñi^{3} **Tl** ŋwi^{3} **Ch** nyi **M** nyi **S** mi^{2} **Qe** mi **Tp** ŋi^{2} **Pa** hɨ^{2}ŋyi^{2} **VN** ŋyi **Oz** ñe (i expected) **Ll** hɨ·^{3} ñi^{3}.

603 *ŋi^{LH} *thread* **Oj** ñi^{2} **U** o^{1}ñi^{3} **Tl** ŋwí^{4} **Ch** nyi **M** nyi **S** mi^{2}nyi^{32} **Qe** minyi **Tp** ci^{1}ŋi^{32} **Pa** ŋyi^{32} **VN** ŋyi **Ll** mɨ^{31}ñi^{3} **Le** ñi^{3} **Qi** ñi^{4} **Co** ŋi^{2}.

604 *ŋl^{LH} *knows* **Oj** ñi^{2} **Ch** nyi **S** nyi^{32} **Qe** nyi **Tp** ŋi^{32} **Pa** ŋyi^{32} **VN** ŋyi(ʔ) **Ll** ñi^{32} (3 expected) **Qi** ñi^{4} **Co** ŋí·r^{2} (short vowel without accent expected).

605 *ŋiŋ *poor* **Oj** ta^{3}ñi^{2} **U** a^{3}di^{4}ñei^{3} **Ch** dinyi **S** temi **Qe** tamei **Tp** te^{2}ŋí^{2} (may reflect a syllable without final *ŋ) **Pa** ti^{1}ŋyę^{2} **VN** tiŋyi (may reflect a syllable without final *ŋ) **Qi** ta^{3}ni^{3} (ñ expected) **Co** tiŋí·ŋ^{1} (short vowel expected).

606 *ŋiŋ *awaken* **Oj** ka^{3}hma^{3} hne^{31}a^{2} ñi^{1} (this form may belong to the *ni^{H} *face* set) **U** ñei^{34} **Ch** nyi **S** nyi **Qe** nyi **Pa** ŋye^{32} **VN** ŋyiŋ **Ll** ñin^{32}.

607 *ŋí^{H} *iron, metal* **Oj** ñi^{1} **U** a^{2}ñi^{23} **Tl** ŋwí^{1} **Ch** nyi **M** nyi **S** mi^{1}nyí^{2} (12 without accent expected) **Qe** mi **Tp** ni^{1}ŋí^{1} **Pa** ŋyí^{1} **VN** ŋye (i expected) **Oz** nañi *machete* **Ll** ñih^{2} **Le** ñi **Qi** ñi^{1} *bell* **Co** ŋí^{1}.

608 *ŋí^{L} *arm's length* **S** ku^{3}nyi^{23} **Tp** ka^{2}ŋéi^{2} **Pa** ŋyí^{2} *fathom* **Ll** ñih^{3} **Qi** ñih^{4} (24 and short vowel expected) **Co** kǫdiaŋi.

609 *ŋí^{LH} *pig* **Oj** se^{1}ñi^{3} **U** a^{1}ñi^{43} **Tl** ŋwi^{3} (accent expected) **Ch** nyi **M** nyi **S** mi^{2}nyi^{23} **Qe** minyi **Tp** i^{1}ŋí^{32} **Pa** ŋyé^{32} (i expected) **VN** ŋyi **Oz** ñi **Ll** šo·h^{2} ñi·h^{2} (short vowel expected) **Qi** ñi^{3} **Co** ŋí·^{21} (short vowel expected).

610 *ŋiʔ *sun, lightning* **Oj** ñiʔ^{4} **U** a^{2}ñiʔ^{3} *lightning* **Tl** ŋwíʔ^{4} **Ch** nyiʔ *thunder* **S** miʔ^{32} *lightning* **Qe** miʔ *thunder* **Tp** ŋíʔ^{3} **Pa** ŋyíʔ^{3} *lightning* **VN** hihmiŋyiŋʔ *lightning* **Ll** ñiʔ^{2} **Le** ñiʔ **Qi** ñiʔ^{4} **Co** ŋíʔ^{1} *sun.* The following forms probably also belong to the same set: **Oj** ha^{1}^{3}ñiʔ^{1} *bread* hmɨ^{2}ñiʔ^{1} *sea* hu^{1}ñiʔ^{1} *Spanish (language)* **U** hau^{23}ñiʔ^{3} *Spanish* ʔei^{43}-ñiʔ^{1} *bread* hɥ^{3}ñiʔ^{1} *sea* **Tl** í^{3}ŋwiʔ^{1} *bread* hmag^{3}ŋwiʔ^{1} *sea* hu^{2}ŋwiʔ^{1} *Spanish* **Ch** ʔinyi *bread* hmagnyi *sea* hunyi *Spanish* (final ʔ expected in these **Ch** forms) **M** hminyeiʔ *sea* **S** ʔimiʔ *bread* mimiʔ *sea* humiʔ

Spanish **Qe** ʔimiʔ *bread* hmaɨmiʔ *sea* humiʔ *Spanish* **Tp** ʔi^{1}ŋíʔ^{21} *bread* hág^{1} ŋíʔ^{21} *Spanish* kuɨg^{2} ŋíʔ^{21} *cane* **Pa** ʔi^{1}ŋyíʔ^{3} *bread* həw^{1} ŋyíʔ^{3} *Spanish* hmɨ^{1}ŋyíʔ^{31} *sea* (3 expected) **VN** iŋyiʔ *bread* hmaɨŋyeʔ *sea* (i expected) **Ll** lu^{3}ñiʔ^{2} *cane* hmɨ^{23}ñi·ʔ^{31} *sea* hu^{23}ñi·ʔ^{31} *Spanish* (short vowel and tone 2 expected in the last two forms) **Le** hmɨñiʔ *sea* **Qi** huh^{2} ñiʔ^{4} *Spanish* kwa^{1} ñiʔ^{4} *cane* **Co** iŋíʔ^{1} *bread* hmɨ^{2}ŋíʔ^{1} *sea* hú·^{1} ŋíʔ^{1} *Spanish* kwɨ^{2}ŋiʔ^{1} *cane* (accent expected).

611 ***ŋɨʔ^{LH}** [1] ***ŋɨ** [2] *on, above* **U** ñeiʔ^{43} *before, first* [1] (i expected) **Tl** ʔi^{2}nyi^{42} *up above* [2] tegnyí^{2} *high in the town* [2] **Ll** ñiʔ^{2} *above* [1] i^{23}ñi·^{32} (short vowel expected) *higher on a stream or in the mountains* [2] **Y** ñiʔ *heights, above* [1]. This set is probably related to *niʰ *face, on.*

612 ***ŋɨ·^{L}** *hay, grass* **U** a^{2}ñei^{3} **M** nyinau **S** mi^{2}nyei^{2} **Qe** mei **Tp** nɨ^{1}ŋei^{2} *roofing leaf* ŋi^{2}maʔ^{2} *wild grass* **Pa** ŋyiw^{2} **Oz** ʔmasǫ ñi *palm* **Ll** ñi·^{3} **Le** ñi·^{3} **Qi** ñih^{23} **Co** ŋi·^{2}.

613 ***ŋɨ·ʔ^{H}** *cedar* **Oj** ʔma^{2} ñiʔ^{1} **U** a^{2}ʔma^{3}ñiʔ^{1} (32 expected; perhaps borrowed from *sun, sea* set or the *salty* set, with which it fits) **Tl** ma^{3}ŋwi (final ʔ expected in the **Tl** and **Ch** forms) **Ch** ʔmanyi **S** ʔma^{2} nyeʔ^{2} (tone 3 expected) **Qe** ʔmamiʔ **Tp** ʔma^{2} ŋiʔ^{31} **Pa** ʔma^{2} ŋyiʔ^{1} **Oz** ʔmañiʔ **Ll** ʔmo^{3} ñi·ʔ^{2} **Le** ma^{3} ñiʔ^{42} (long vowel expected; seems to be borrowed from the *salty* set) **Qi** ʔmo^{3} ñiʔ^{42} (Vh expected) **Co** ʔma ŋi·ʔ^{21}.

614 ***ŋɨ·ʔ^{HLH}** [1] ***ŋɨ^{HLH}** [2] *salty* **Oj** ñiʔ^{31} [1] **U** ñiʔ^{1} [1] (tone fits [2]) **Tl** ŋwiʔ^{1} [1] (42 expected) **Ch** nyi [2] **S** nyeʔ [1] **Qe** nyaiʔ [1] **Tp** ŋiʔ^{31} [1] **Pa** ŋyiʔ^{1} [1] **Oz** miñi [2] **Ll** ñi·^{232} [2] **Qi** ñiʔ^{3} *seaweed* [1] (may not be cognate; ñihʔ^{242} is expected) **Co** ŋi·^{12} [2].

615 ***ŋu^{H}** *inner tree wood* **Tp** nɨ^{1}ŋɨ^{1} nɨ^{1}ʔma^{2} **Pa** ŋɨ^{1} ʔma^{2} *new white wood outside the heart wood* **Ll** ŋu^{2}ʔmo^{3} *heart wood.*

616 ***ŋú^{LH}** *meat* **Oj** hwɨ^{31}ŋo^{3} **U** o^{1}ŋeu^{43} **Tl** ŋú^{3} **S** ŋu^{23} **Qe** ŋeu **Z** ŋu **Tp** nɨ^{1}ŋɨ^{32} (accent expected) **Pa** ŋíw^{32} **VN** ŋo **Oz** waŋu **Ll** ŋuh^{2} **Le** ŋú^{2} **Qi** ŋu^{3} **Co** ŋú·^{21} (length not expected).

617 ***ŋaŋ** [1] ***ŋa·ŋ** [2] *rabid, crazy, drunk* **U** a^{3}ŋo^{43} [2] **Tl** ŋó^{4} *crazy* [2] **S** huŋa *joke* [1] caŋo *crazy person* [2] **Tp** ŋá^{32} *rabid* [1] **Pa** ŋá^{32} *crazy* [1] **Ll** mɨ^{3}ŋən^{3} [1] **Co** dia^{12} ŋa·ŋ^{2} [2].

618 ***ŋá^{HL}** *saw* **Ll** ŋoh^{23} **Y** ŋa **Co** kaŋár^{2}.

619 ***ŋaʔŋ** *went home* **Oj** ŋaʔ^{4} **U** ŋaʔ^{2} **Tl** ŋáʔ^{2} **Ch** maŋayʔ (y not expected) **S** ŋaʔ **Qe** ŋaʔ **Tp** ka^{2}ŋáʔ^{3} **Pa** ŋaʔ^{32} **Oz** ŋaʔ **Ll** ŋəʔn^{2} **Le** maŋayʔ **Qi** ŋaiʔ^{2} **Co** ŋaiŋʔ^{2}. This set is probably related to the following one.

620 ***ŋa·** *went off* **U** a^{3}ŋo^{23} **Tl** ŋó^{2} **S** maŋo **Tp** ka^{2}ŋó^{3} **Pa** kaŋó^{32} **Ll** ŋo·h^{2} **Le** maŋa **Qi** ŋoh^{3} **Co** ŋór^{2} (long vowel expected). This set is probably related to the preceding one.

621 ***ŋiu** *vomit* **Oj** ñi^{1} ʔni^{2} **U** ñi^{23} **Ch** nyu **M** nyu **S** nyu **Qe** nyi **Tp** ŋí^{2} **Pa** ŋyú^{2} **VN** ŋyu **Ll** ñö^{32} **Qi** ñüh^{24} (h not expected) **Co** ŋiőr^{12}.

622 ***ŋiú^{HL}** [1] *nine (inan.)* ***ŋiúŋ^{HL}** [2] *nine (an.)* **Oj** ñi^{4} [1] and [2] **U** ñi^{34} [1] **Tl** ŋí^{2} [1] **Ch** nyu [1] **M** nyu [1] **S** nyu^{23} [1] nyu [2] **Qe** nyi [1] **Tp** ŋi^{3} **Pa** ŋyu^{3} [1] ŋyo^{3} [2] **VN** ŋyu [1] ŋyuŋ [2] **Oz** ñu [1] **Ll** ñöh^{23} [1] ñuhn^{23} [2] **Le** ñú^{4} [1] **Qi** ñü^{34} [1] ñui^{2} [2] (34 expected) **Co** ŋiő^{1} [1].

623 ***ŋiuʔ** *father (nonthird person stem)* **Oj** ñiʔ^{23} hna^{3} **U** neiʔ^{2} (ñ expected) **Tl** ŋyúʔ^{2} **Ch** nyuʔ **M** nyuʔ **S** nyuʔ **Tp** ŋiʔ^{3} **Pa** ti^{1}ŋyeʔ^{3} **VN** nuiʔ (ŋ expected) **Ll** ñuʔn^{23} **Lt** ñuyʔ **Qi** ñüʔh^{1} **Y** ñuʔ.

624 ***ŋiu·^{L}** *duck* **Oj** mi^{2}ñi^{2} **U** a^{1}ñei^{3} **Tl** gya^{2}ŋi^{3} **Tp** i^{1}ŋei^{2} **Pa** háʔ^{2} ŋyiw^{2} *duck* hmɨy^{2} ŋyiw^{2} *pond* **VN** mɨŋyuŋ (final ŋ not expected) **Oz** mañö **Ll** tǫ^{3} mɨ^{2}ñö·^{3} *duck* ñö·^{3} *mud* **Le** mɨ^{3}ñu·^{3} *duck* ñu·^{3} *mud* **Ql** ma^{3}ñüh^{23} **Co** ŋiö·^{1} *duck* ŋiö^{2} *mud* (long vowel expected).

625 ***ŋiu·ʔ^{LH}** [1] ***ŋiu** [2] *man, male* **U** a^{3}ñiʔ^{3} [1] **Tl** ŋyewʔ^{4} [1] **Ch** cenyu *bachelor* [2] **S** canyu *young man* [2] **Qe** ca nyi [2] **Tp** za^{2}ŋiʔ^{2} [1] **Pa** ŋyuʔ^{32} *fiancé, husband* [1] ŋyú^{2} *elder brother* [2] **Ll** hǫ^{3}ñö·ʔ^{31} *son* [1] (tone 3 expected) ši^{3}ñö·^{232} *unmarried young man* [2] (short vowel expected) **Le** šiñu *young man* [2] **Co** ŋiö·ʔ^{12} (tone 2 expected).

626 ***ŋia·ʔŋ** *come here!* **U** nioʔ^{2} (ñ expected) **Pa** ŋyáʔ^{32} **Ll** ña·ʔn^{3}.

*w

627 ***wɨ^{LH}** *spider* **Ll** wɨ·h^{3} *black widow spider* (short vowel expected and no accent) **Qi** wu^{4} **Co** wɨ^{2}.

628 ***wɨ·** *hurts, pain* **Oj** wɨ^{3} **U** eu^{43} **Ch** gwú^{2} **S** wu **Tp** uɨg^{32} **Pa** hmɨ^{1}-way^{32} *pain, sickness* wuʔ^{1} *it hurts him* (reflects *wɨ(·)ʔ) **VN** u **Ll** wɨ·^{232} **Qi** wuh^{2} **Co** wɨ́·^{21}. This set may be related to *wɨ·ʔ ~ *wɨ·ʔ *be hurt, wounded.*

629 ***wɨ́·^{L}** *climb, ascend* **U** eu^{23} (tone 4 expected) **Tl** gwú^{3} **Ch** ma gweg **S** ma ka wu **Tp** uíg^{2} **Pa** wɨ́y^{2} **Ll** sɨ^{3}wɨ·h^{3} **Lt** ya wɨ **Qi** wuh^{23} (reflects a syllable without accent).

630 ***wɨ́·^{LH}** *complicated* **U** heuʔ^{43} (reflects *hwɨ́(·)ʔ^{LH}) **Tl** gweg *hard, sad* (reflects *wɨ) **Tp** huɨ́ʔ^{32} (reflects *hwɨ́(·)ʔ^{LH}; cf. the U form) **Pa** wé^{2} (reflects *wɨ(·)ŋ; 32 without accent expected) **Ll** wɨ·^{32} (32 is apparently related to tone 2 with postnuclear h, which is the expected reflex) **Co** wɨ́·ŋ^{21} (reflects

*wɨ·ŋ^LH; nasalized vowel not expected).

631 ***wɨ·ʔ^L** *smooth* **Oj** pɨ^31 wɨʔ^2 **U** euʔ^3 **Tl** gwegʔ^4 **Ch** gwegʔ **M** wuʔ **S** wɨʔ^2 **Tp** uɨʔ^2 **Pa** wuʔ^2 *(inan.)* weʔ^2 *(an.)* (reflects *wɨ·ʔŋ) **VN** uʔ **Oz** wɨʔ **Ll** wɨ·ʔ^3 *slippery* wi·ʔ^3 *smooth* (reflects *wi·ʔ^L) **Pe** wɨʔ **A** wiʔ **Qi** wuhʔ^23 **Co** wɨ·ʔ^12.

632 ***wɨ·ʔ^L** *saliva, drool* **Tp** uə́ʔ^32 (uɨʔ^2 expected) **Ll** wɨ·ʔ^3 **Qi** wuhʔ^23 **Co** ʔwɨ·ʔ^12 (preconsonantal ʔ not expected). This set may be related to *wɨ·ʔ^L *smooth.*

633 ***wɨ·ʔ^H** *minnows* **U** a^1si^2euʔ^2 **S** ci wɨʔ **Pa** ci^1wúʔ^1 **Ll** wɨ·ʔ^2 (reflects a syllable without accent) **Le** vɨʔ **Co** wi·ʔ^12 (probably reflects *wi·ʔ^HLH). Cf. *wí·ʔ^H *fish scales.*

634 ***wə́·^L** *a long time* **U** ue^4 **Tl** gwé^4 (tone 3 expected) **S** we^23 **Tp** uə́^2 **Pa** wú^2 **Ll** wə·h^3 **Le** vó·^3 **Qi** woh^3 **Y** və.

635 ***wí·ʔ^H** *fish scales* **Tp** uɨ́ʔ^1 **Ll** wi·ʔ^2 (reflects a syllable without accent) **Qi** wihʔ^1 **Co** wi·ʔ^12 (wíʔ^1 expected). This set seems to be related to *wɨ·ʔ^H *minnows* in some way not yet clear. Cf. especially the **Co** forms.

636 ***wɨ̣·^L** *vine, hammock bridge* **Oj** či^1wɨ̣^2 **U** d^ya^1gụ^3 ʔuaʔ^3 **Tl** gwụ **Ch** gwęg **S** wṹ^2 (accent not expected) **Qe** wụ **Tp** nɨ^1uɨ̣g^2 **Pa** wɨ̣y^2 **Ll** wɨ̣·^3 **Le** vɨ̣·^3 **Qi** wụh^23 **Y** vɨ̣ **Co** wɨ̣·^2.

637 ***wɨ̣́·^LH** *dish* **Oj** ho^1wɨ̣^2 **U** a^2gụ^43 **Tl** gwú^4 (nasalization expected) **M** gụ **S** wǫ^23 **Qe** wụ **Tp** nɨ^1uɨ̣g^32 **Pa** wɨ̣y^32 **VN** a ụ **Oz** wɨ̣ **Ll** wɨ̣h^23 (tone 2 expected) **Le** vɨ̣́·^4 (tone 2 expected) **Qi** wụh^43 **Co** wɨ̣́·^21.

638 ***wɨ̣·ʔ** [1]~***wɨ̣·ʔ** [2] *be wounded, hurt* **Oj** či^1wɨ̣ʔ^3 [1] **U** ra^3gụʔ^4 [1] **Ch** ka gwɨ̣ʔ [1] **S** ka wụʔ [1] **Qe** la wɨ̣ʔ [1] (ụ expected) **Pa** wɨ̣́ʔ^2 **Ll** ka^23wɨ̣ʔ^3 [1] rɨ^23wɨ̣ʔ^3 [2] **Le** ga^4vɨ̣·ʔ^34 [1] ri^4vɨ̣·ʔ^34 [2] **Qi** wụh^23 [1] (final ʔ expected). This set may be related to *wɨ· *hurts, pain.*

639 ***wɨ̣́·ʔ^L** [1] ***wɨ̣́·^L** [2] ***wɨ̣́·^L** [3] *far* **Oj** wɨ̣ʔ^3 [1] **U** i^2gụʔ^4 [1] i^2gụ^4 [2] **Tl** gwụʔ^3 [1] **Ch** gwęgʔ [1] **M** gụʔ [1] **S** nyi wụʔ [1] **Qe** wụʔ [1] **Tp** uɨ́g^2 [2] **Pa** wɨ́y^2 [2] **VN** ha wɨ̣ [3] **Oz** ǫ̣ [3] **Ll** wɨ̣h^3 [2] **Le** vɨ̣ [2] **Qi** wɨ̣h^2 [3] (tone 3 expected) **Y** vɨ̣ [3] **Co** wí·^2 [3] (nasalization expected). It may be that this set should be reconstructed uniformly with *i·. In that case it would be necessary to regard the Ll-Le forms as borrowings from a Tp-Pa language, in which *ɨ-like reflexes are expected.

*l

640 ***lɨ^L** *cubit, span from elbow to finger tip* **U** leg^3 **S** lɨ^2 **Tp** lə^2 **Pa** lɨ^2 **Ll** lɨh^3 (h not expected).

641 ***lɨ** [1]~***li** [2] *happen* **U** leg^3 [1] **Ch** leg [1] **S** lɨ [1] **Pa** lɨ́w^2 [1] lé^2

[2] (reflects *iŋ) **VN** ka le (reflects *ə) **Oz** ga la (reflects *ə) **Ll** ka^{23}ləh^{23} (reflects *ə) rɨ^{23}lih^{3} [2] **Qi** gɨ^{3}lɨ^{3} [1] **Co** ka lɨ [1] lɨiŋ^{2} (reflects *lɨŋ). In this set the **VN, Oz,** and **Ll** forms appear to reflect *ə. In the set labeled *be* the first **Ll** form seems to reflect *ə. In the set labeled *why?* the **Oz** and **Ll** forms reflect *ə, and the **U** and **S** forms probably do, too. The **Ll** forms in *think* and *imitate* also fit *ə better than *ɨ. Since **Ll** occasionally shows the expected reflex of *ɨ after *l it is better not to regard these forms as showing aberrant reflexes of *ɨ in specialized environments but rather to conclude that *ɨ was frequently replaced by *ə after *l in several languages, and especially in **Ll.** Nevertheless, these sets should be reconstructed with the basic stem vowel *ɨ since (a) most languages show vowels that reflect *ɨ and (b) nearly all of these sets are verbs that show an alternant with *i, which regularly alternated with *ɨ but is not known to have alternated with *ə.

642 ***lɨ(ʔ)** [1] ***li** [2] *(to) end* **U** leg^{3} [1] **Tl** ma^{3}lég^{3} [1] ma^{3}lagʔ [1] (reflects a syllable closed by *ʔ) **Ch** ma li [2] **S** ma lɨ [1] **Tp** ka^{2}lə^{3} [1] ka^{2}lɨ́ʔ^{3} [1] (reflects a syllable closed by *ʔ) **Ll** mɨ^{3}li·h^{2} [2] (short vowel expected) **Co** lɨ^{2} [1].

643 ***lɨ́^{LH}** [1]~***li** [2] *be, become (inan.)* ***lɨŋ** [3] *be, become (an.)* **U** leg^{34} [1] ląg^{43} [3] **Tl** lég^{3} [1] li^{4} [2] **Tp** lə́^{32} [1] **Pa** lɨ́^{32} [1] **Ll** ləh^{2} [1] rɨ^{23}lih^{23} [2] lən^{32} [3]. See note at the end of the set *lɨ~*li *happen.*

644 ***lɨ́(ʔ)^{HL}** [1] ***lɨ́^{HL}** [2] *why?* **U** ʔęʔ^{4} lagʔ^{3} [1] (reflects a syllable without accent closed by *ʔ) lei^{4} [2] (34 expected) ʔęʔ^{4} le^{34} (reflects *ə) **Tl** lí^{2} [2] **S** ʔeʔ lɨeʔ (reflects *ə in a syllable closed by *ʔ) **Qe** ʔe lɨ [1] **Tp** ʔe^{2} lə^{3} [1] **Pa** ʔe^{2} lɨ^{3} [1] **Oz** ʔe la (reflects *ə) **Ll** ʔe·^{2} ləh^{1} (< ləh^{23}) (reflects *ə) **Qi** ʔeh^{42} lɨ^{34} [1].

645 ***lɨ́ŋ^{L}** [1]~***lí·ŋ^{L}** [2] *think* **U** lạɨ^{4} [2] **Tl** lę́y^{2} [2] (tone 3 expected) **S** lɨ [1] **Tp** lɨ^{2} [1] **Pa** lə́^{2} [1] **Ll** ləhn^{3} [1] li·^{3}ra^{2} [2] (reflects *li·).

646 ***lɨʔ^{H}** *spindle* **Oj** na^{1}lɨʔ^{1} **U** i^{2}ʔlagʔ^{32} (initial ʔ not expected) **Tl** ŋwí^{1} lagʔ^{1} *knife, shovel, hoe* **S** lɨʔ **Pa** ʔma^{2} mɨy^{3} lɨ́ʔ^{1} (reflects a syllable with accent) **VN** ʔma laɨʔ. The vowels of the **U** and **Tl** forms clearly reflect a short vowel while the vowels of the other forms are ambiguous in this regard. However, the tones uniformly reflect a long vowel. This set may be related to *lɨ·ʔ *round.*

647 ***lɨ·^{HLH}** *adobe* **U** a^{2}kuaʔ^{32} leg^{1} (the syllabic reflects a short vowel, but the tone reflects a long vowel) **Ch** kwa lag **S** kwa la **Qe** kwa laɨ **Tp** guaʔ^{31} lag^{1} **Pa** guɨʔ lɨw (reflects a short vowel) **Oz** gwa lɨ.

648 ***lɨ·** [1]~***li·** [2] *recover, become well* **Tl** lég^{3} [1] li^{4} [2] (both forms reflect a short vowel) **Pa** láy^{32} [1] léy^{3} [2] **Ll** mɨ^{3}lɨ·n^{32} [1]

sɨ^{3}li·n^{23} [2] (both forms reflect a final *ŋ) **Co** lɨ·^{21} [1].

649 ***lɨ·** [1] ***li·** [2] ***li·ŋ** [3] *seem, appear* **Oj** lị^{23} hna^{3} [3] *I feel* **U** lei^{3} [2] (reflects a short vowel) **Tl** lẹy^{1} [3] **S** li [2] **Tp** lə^{32} [1] (reflects a short vowel) **Pa** ley^{31} [2] **Ll** li·^{23} [2] **Qi** lɨ?h^{2} [1] *feel* (reflects a syllable with *?) **Co** lɨ·^{21} [1].

650 ***lɨ·ŋ** *imitate* **Tp** cɨ^{1}lị?^{31} *(third person object)* lág?^{2} *(first person object)* (may reflect a syllable without final *ŋ) **Pa** lə?^{2} (this and the **Tp** forms reflect a syllable with final *?) **Ll** lə·n^{32} **Co** lɨ·ŋ^{2}.

651 ***lɨ·?** *round* **U** ụ^{4}ma^{4}leg?^{4} *wheel* **Ch** lɨ? (ag is the usual reflex of *ɨ before *?; ɨ as recorded in this set and *lɨ·? *when?* may show a special reflex after *l or may be a misrecording of ag) **S** ci lɨ? **Tp** rə lị? (this **Tp** form and the second **Pa** form reflect *lɨ·?ŋ) **Pa** ni^{1}lɨ?^{32} *round* la^{3}hi^{2}la^{3}lə?^{3} *around* **VN** ni laɨ? **Oz** lɨ? **Ll** rɨ^{3}lɨ·?^{2} **Qi** lɨh^{23} *circle* (final ? expected) **Co** lɨ?^{1} (long vowel expected). The following forms probably belong to the same set: *lɨ·? [1] *lɨ?ŋ [2] *roll, slide* **Ll** lɨ·?^{32} [1] lɨ?n^{23} [2] **Le** lɨ?^{32} [1] (long vowel expected) **Co** lɨŋ?^{2} [2]. Cf. also *lɨ?^{H} *spindle.*

652 ***lɨ·?** *when?* **Oj** lɨ?^{4} **U** ai^{3} leg?^{4} **Tl** lé?^{3} (this may be a misrecording of **leg?** or else the **Tl** and **M** forms may reflect *le·?) **Ch** le? (?) **M** le? (?) **S** lɨ? **Tp** lɨg?^{2} (ɨ rather than ɨg expected) **Pa** ?a^{2} lɨy?^{2} *when?* ma^{2}lɨy?^{2} *a long time ago* **VN** laɨ? **Oz** lɨ? **Ll** lɨ·?^{31} **Qi** lɨh^{132} (final ? expected) **Co** mɨ lɨ·?^{12} *a long time.*

653 ***lɨ^{H}** *edible palmetto shoot (tepejilote)* **U** họ^{4} lei^{32} (tone 2 expected) **Tl** li^{2} **S** li^{1} **Tp** nɨ^{1}li^{1} **Pa** li^{1} **VN** li **Ll** li^{2} ǰo·h^{2} **Qi** li^{2} **Y** li **Tm** lɨ (i expected) **Co** li^{1}.

654 ***lí^{H}** *flower* **Oj** li^{1} **U** o^{1}lei^{23} **Tl** lí^{1} **S** li^{12} **Tp** lí^{1} **Pa** lí^{1} **VN** li **Oz** wa li **Ll** lih^{2} **Le** lí^{1} **Qi** li^{1} **Co** lí^{1}.

655 ***li·?^{H}** [1] ***li^{H}** [2] *pretty* **Oj** li^{1}?ye?^{2} [2] **Ch** li ?yo? [2] **Pa** li^{1}?yo?^{31} [2] **Oz** li ?ña [2] **Ll** li·?^{2} [1] **Le** li? [1].

656 ***lu^{L}** *gnat* **U** a^{1}leu^{3} **Tl** lu^{3} **S** lu^{12} (tone 2 expected) **Tp** i^{1}lu^{2} **Pa** cyi^{1}lu^{2} **Oz** či lu **Ll** lu^{3} **Le** lu^{3} **Qi** lu^{4} (34 expected) **Co** lu^{12}.

657 ***lu·** *thin* **Pa** luw^{2} (may reflect a syllable with final *ŋ) **Ll** lu·h^{2}.

658 ***lú·^{LH}** *clarinet* **Oj** lu^{2} **U** a^{2}lau^{43} **Pa** ləw^{32} **Ll** lu·h^{2} **Co** lú·^{21} *music.*

659 ***lú·^{HLH}** *neck* **Oj** lu^{31}a^{2} **U** ma^{3}lau^{2} **Tl** law^{42} (reflects a syllable without accent) **S** laɨ^{1} **Qe** leu **Tp** zɨ^{2}lag^{21} **Pa** law^{1} **VN** lau **Oz** lu **Ll** lu·h^{2} **Lt** lu **Qi** luh^{242} **Co** mo lu·^{12}.

660 ***la^{L}** *here, this* **Oj** la^{2} **U** la^{3} **Tl** la^{3}la^{3} *in this way* lá^{2} *this* (la^{3} is the expected form) **S** la^{2} **Tp** le^{2}la^{2} *like this* ha^{1} lá^{3} *here* (la^{2} is the expected form) **Pa** ?i^{1}la^{2} *this* **VN** a la **Oz** he la *here* **Ll** la^{3} (may have remained

a rather than shifted to o in the **Ll** area because of high frequency) **Lt** la **Qi** lo^{34} **Y** la **Co** la.

661 ***la** [1]~***lia** [2] *buy (inan.)* ***laŋ** [3]~***liaŋ** [4] *buy (an.)* **Oj** la^{13} hna^{3} *(first person singular)* [1] la^{2} ʔni^{2} [2] **U** la^{23} [1] lia^{43} [2] **Tl** lá^{2} [1] **Ch** la [1] lya [2] **S** lya [2] **Qe** la [1] **Tp** lá^{32} [1] **Pa** lá^{32} [1] lyí^{3} [2] lą́^{2} [3] lyą́^{3} [4] **VN** la [1] le [2] **Oz** la [2] **Ll** lo^{32} [1] lá^{2} [2] lən^{32} [3] len [4] **Le** la^{32} [1] lyá^{2} [2] **Qi** lo^{24} [1] la^{43} [2] **Y** la [1] le [2] **Co** lár^{21} [1] liá^{21} [2].

662 ***lá**^{LH} *roasting ear* **Oj** kwɨ^{2} la^{3} **Tl** kwu^{3} lá^{3} **S** la^{23} **Tp** kuɨg^{2} lá^{32} **Pa** kwɨy^{2} lá^{32} **VN** ku la **Ll** kwɨ^{3} lo^{32} (tone 2 with syllable-final h expected) **Le** ʔo haʔ la *fresh-corn tortilla* **Qi** lo^{3} **Co** lá·^{21} (short vowel expected).

663 ***laʔ** [1]~***liaʔ** [2] *bathe* **Oj** a^{4}loʔ^{3} ʔni^{2} [1] leʔ^{2} ʔni^{2} [2] **U** loʔ^{3} [1] lieʔ^{3} [2] **Tl** lyóʔ^{2} [2] **Ch** ma la loʔ [1] ma la ŋo ha lyoʔ [2] **S** loʔ^{32} [1] ŋa lyoʔ [2] **Qe** ma la lyoʔ [2] (lyuʔ expected) **Tp** lóʔ^{32} [1] **Pa** lóʔ^{32} [1] lyoʔ^{32} [2] **VN** loʔ [1] (oa expected) lyeʔ [2] **Oz** ma loʔ [1] lötʔ [2] **Ll** loʔ^{23} [1] läʔ^{23} [2] **Le** lá·ʔ^{4} [1] lya·ʔ^{4} [2] (short vowel expected in both **Le** forms) **Qi** loʔh^{3} [1] **Co** laʔr^{2} [1] leʔ [2] (ia expected) laiŋʔ^{2} *(trans. an.)* (reflects *liaʔŋ).

664 ***la·**^{L} *skin, leather* **Oj** lo^{2} **U** a^{2}lo^{3} **Tl** lyew^{3} (reflects *ia· rather than *a·) **Ch** lo **M** lo **S** lo^{3}co^{2} *person's skin* ló^{2} *sandals* (tone 2 without accent expected) **Tp** nɨ^{1}lau^{2} *skin* nɨ^{1}lo^{1} háʔ^{2} *leather* (tone 2 is the expected reflex) **VN** lao **Oz** lo *sandal* **Ll** lo·^{3} **Le** la·^{3} **Ql** loh^{23} **Co** lo·^{2}.

665 ***la·**^{L} *flat* **Pa** ləw^{2} *thin* **Ll** lo·^{3}.

666 ***la·**^{HLH} *lime, cement* **Oj** sɨ^{1}lo^{31} **U** u^{1}lo^{1} **Tl** lyo^{42} (reflects *ia· rather than *a·) **Ch** lo **M** lo **Qe** lo **Pa** law^{1} **VN** loa **Oz** wa lo **Ll** lo·^{232} **Lt** fi la **Qi** loh^{242} **Co** lo·^{12}.

667 ***la·**^{HLH} *donkey, mule* **Oj** co^{4} lo^{31} *burro* **U** a^{2}lo^{1} **Tl** lyo^{42} (reflects *ia· rather than *a·) **Ch** lo **M** lo *burro* **S** lo **VN** loa **Oz** ča lo **Ll** lo·^{232} **Le** la *horse.* The following set is probably related.

668 ***la·**^{HLH} *rabbit* **Oj** lo^{31} kwa^{3} **U** a^{2}lo^{1} kua^{4} **Tl** la naw (a rather than o occurs in the forms from **Tl** through **Pa,** except **Tp,** because of the pretonic position) **S** la naɨ **Tp** lo^{21}kua^{32} **Pa** la^{1}kwɨ^{3} **VN** lo kyu (o rather than ao occurs in the pretonic position) **Oz** lo kya **Ll** lo·^{232} ñi·^{3} **Qi** loh^{242} **Co** lo·^{12}.

669 ***la·**^{HLH} *Tuxtepec, a city near the Chinantla* **Oj** ma^{3}lo^{31} **U** ma^{4}lo^{1} **Tl** ma^{3}lyo^{42} (reflects *ia· rather than *a·) **Ch** ma lo **Qe** ma lo **Tp** ma^{2}lo^{21} **Pa** maʔ^{3} law^{1} **VN** maʔ loa **Oz** ma lo **Ll** moʔ^{3} lo·^{232} **Lt** maʔ la **Qi** mohʔ^{34} lohʔ^{242}. This set is probably related to *la·^{HLH} *rabbit/mule* or possibly to *la·^{HLH} *lime.*

670 ***la·** [1]~***lia·** [2] *begin* **Oj** hma^{1}le^{3} ʔni^{2} [2] **U** ra^{3}lie^{5} [2] **Tl** lo^{34}

[1] **Ch** ma ka la lyo [2] **S** ma li lyo [2] **Qe** ma lyu [2] **Tp** hme^{2}lióg^{3} [2] **Pa** mi^{2}lyáw^{1} [2] **Ll** lo·^{23} [1] lä·^{23} [2] **Le** lá·^{4} [1] lyá·^{2} [2].

671 ***la·** *worm* **Tl** ha?^{3} lo/lew **Tp** i^{1}lio^{31} *caterpillar* (reflects *lia·) **Pa** lyo^{31} (reflects *lia·) **Ll** lo·^{3} *worm, snake.*

672 ***lá·^{H}** *whiskers* **Oj** hñi^{2}lo^{1}a^{2} **U** lo^{23} **Tl** ló^{1} **Ch** lo **S** lo **Tp** nɨ^{1}láu^{1} **Pa** ləw^{1} **Ll** lo·h^{2} **Le** la **Qi** loh^{1} **Y** lo **Co** ló·^{2} (tone 1 expected).

673 ***lá·^{H}** [1] ***la·^{LH}** [2] *pheasant* **Oj** tą^{2}lo^{1} [1] **U** a^{2}lo^{23} [1] **Tl** ta lo (phonetic pitch markings on the data suggest that **Tl-Ch** reflects [1] and that **S** reflects [2]) **Ch** tą lo **S** tą lo **Tp** i^{1}lo^{32} [2] **Pa** lo^{32} [2] **Ll** hmo^{3} lo·^{3} *cock* [2]. The [1] forms largely follow *tą^{LH} while the [2] forms generally do not. The tone difference of the [1] forms may be the result of tone sandhi patterns not yet recognized.

674 ***lá·^{L}** *score* **Oj** tǫ^{4} lo^{4} *forty* ña^{3}lo^{3} *hundred* **U** to^{4} lo^{5} *forty* nia^{4} lo^{4} *hundred* **Tl** lew **Ch** tǫ lo *forty* **S** tǫ lo *forty* **Tp** ʔŋia lo *hundred* **Pa** tǫ^{3} láw^{3} *forty* ŋyi^{3} ləw^{2} *hundred* **VN** tǫ lao *forty* **Ll** tụh^{23} lo·h^{2} *forty* i^{3}lo·h^{3} *hundred* **Qi** tụ^{3} loh^{3} *forty* ʔña^{3} loh^{3} *hundred.* The tones of the forms meaning *hundred* fit the tone reconstruction. The tones of the forms meaning *forty* are probably the result of old tone sandhi, possibly at the Proto Chinantec horizon.

675 ***lá·^{LH}** *prickly pear cactus (nopal)* **Oj** lo^{2} **U** o^{1}lo^{43} **Tl** ma^{3}ló^{4} **Ch** lo **S** lo **Tp** nɨ^{1}lau^{32} **Pa** cyu?^{1}ləw^{32} *cactus fruit (tuna)* **VN** lao **Qi** loh^{41} (43 expected) **Y** lo **Co** lo·^{21} (accent expected).

676 ***la·ʔ^{H}** *waterfall* **U** i^{2}la?^{3} hụ^{3} (32 expected) **Tl** la? hmag **S** la?^{1} (tone 3 expected) **Tp** la?^{31} *waterfall, stream* **Ll** lo·?^{2} *rapids* **Le** la? **Qi** loh?^{42} **Co** lo·?^{21}.

677 ***la·ʔ** *cut (branches)* **Pa** lá? **Le** la?^{32} (long vowel expected).

678 ***liu** *speak* **Ll** lö^{23} **Le** lyu^{4}.

679 ***lia^{L}** *a kind of owl (lechuza)* **U** a^{2}lia^{3} **Tl** lyo^{42} (tone 3 and ya rather than yo expected) **M** ta lya **S** lya^{2} **Pa** la^{2} (reflects *a rather than *ia) **Ll** lä^{3} **Co** liá^{1} (12 without accent expected).

680 ***liá^{L}** *trap* **Oj** la^{3} **U** a^{2}lia^{4} **Tl** lyá^{3} **M** lya **S** lya^{23} **Tp** ci^{1}liá^{2} **Pa** lí^{2} (lyi expected) **Oz** sɨ la **Ll** läh^{3} **Le** lyá^{3} **Qi** la^{24} **Y** le **Co** liá^{12}.

681 ***lia·** *load, cargo* **Oj** le^{1} **U** lie^{23} *goods* lie^{3} *zontle, a unit of weight* **Tl** lyo^{12} **Ch** lyo **S** lyo^{32} **Qe** lyu **Tp** lio^{31} **Pa** lyo^{31} *load* lew^{2} *zontle* **VN** lya **Oz** lö **Ll** lä·h^{2} **Le** lya **Qi** lah^{242} *tercio, a unit of measure* **Y** la *bundle.* Perhaps tone *^{LH} should be reconstructed for this set. **U** 3 and **S** 23 reflect a syllable without accent and **Ll** 2h reflects a syllable with accent. **Tp** and **Pa** 31 is probably a variant of 32, which reflects *^{LH}.

Oj 1, **Tl** 12 and **Qi** 242 do not fit this reconstruction.

682 ***lia·** [1]~***la·** [2] *wrap* **U** lie^{3} [1] **Tp** lio^{32} [1] **Pa** lyo^{32} [1] lo^{32} [2] **Oz** lö [1] **Ll** lä·^{23} [1] la·n [2] **Le** lya·^{4} [1].

683 ***lia·ŋ** *escape (intr.), free (tr.)* **Tp** liǫ^{2} *(intr.)* **Pa** lyaw^{3} *(tr. first-person obj.)* lúw^{2} *(tr. third-person obj.)* (reflects *la·ŋ) **Ll** lä·n^{3} *(intr.)* lä·n^{32} *(tr.)* **Le** le·y^{32} *(tr.)* **Co** (ka)lá·iŋ^{2} (reflects *la·ŋ).

684 ***lia·ʔ^L** [1] *black (inan.)* ***lia?ŋ** [2] *black (an.)* **Oj** la?^{2} [1] **U** lia?^{3} [1] **Tl** lya?^{4} [1] **Ch** lya? [1] ląʔ [2] (lyąʔ expected) **S** lya?^{2} [1] **Tp** lia?^{2} [1] **Pa** li?^{2} [1] (lyiʔ expected) lya?^{2} [2] **VN** lye? [1] **Oz** la? [1] **Ll** lä·?^{3} [1] le?n^{23} [2] **Le** lya?^{3} [1] (long vowel expected) lyéy?^{4} [2] **Qi** lah?^{23} [1] **Co** lé·?^{12} [1] leŋ?^{12} [2].

685 ***lia·?** *pick* **Pa** lyi?^{32} *pick (fruit)* **Ll** lä·?n^{32} *pick up with the bill (bird)* (reflects a syllable with final *ŋ).

686 ***liá·?^L** *thus* **U** ai^{3}lia?^{4} *how?* **Pa** ?a^{2} lá?^{2} *how?* lá?^{3} té^{32} *that way, true* (reflects *a· rather than *ia·) **Ll** la?^{3} or lä?^{3} **Lt** lya?.

*y

687 ***yu·** *dig* **Oj** yi^{1} ?ni^{2} **U** d^{y}ei?^{23} (? not expected) **Ch** ma di gi **S** kwa^{1}yei^{32} **Tp** géi^{32} **Pa** gyéw^{32} *(inan.)* gyúw^{2} *(an.)* (reflects *yu·ŋ) **Oz** gyu-i **Ll** yö·^{32} **A** yö **Le** yu·^{32} **Co** í·r^{12}, ɨ·^{12} (in both forms yö· is expected; the second form may reflect a syllable with final *ŋ).

688 ***yu·** *brown* **Ll** ku^{3}yö·h^{3} **Qi** kwu^{4}yüh^{1}.

689 ***yu·ʔ^H** [1] ***yu·ʔ^LH** [2] ***yuʔ** [3] ***yuŋ** [4] *old person* **Oj** hmi^{2}?yi?^{2}a^{2} *grandfather* [2] (preconsonantal ? not expected) **U** ni^{3}d^{y}ei?^{32} *grandfather* [1] d^{y}i?^{32} *old* [3] (less common term) a^{3}dǫ^{5} *old* [4] (more common term) **Tl** ni^{2}dáw?^{1} *grandfather* [1] (reflects a syllable with accent) ca dǫ *old* [4] ?i dąw *grandfather* (reflects *yu·ŋ) gɨ?^{4} *old* (reflects *yu?ŋ) **Ch** ni daw? *grandfather* [1] or [2] ca dǫ *old* [4] **M** ni dau? *my grandfather* [1] or [2] gyi? *old person* [3] sa dau *old* (reflects *yu·) **S** nyu^{1}dɨe?^{32} *grandfather* [2] ye?^{3} *old person* [3] dǫ *old* [4] **Qe** nyi de? *grandfather* [1] or [2] ye? *sir* [3] ca dǫ *old person* [4] **Z** d^{y}ei? *old* [3] **Tp** gi?^{31} *grandfather* [3] **Pa** hɨ^{2}gyu?^{31} *grandfather* gyu?^{31} *sir* ([2] if 31 is based on 32) gyuw?^{2} *old* (reflects *yu·?ŋ) **VN** hmi gyu? *grandfather* [1], [2] or [3] **Oz** ta gyö? *grandfather* [1], [2] or [3] ma gyụ? *became old* (ụ rather than ö probably reflects a syllable with final *ŋ) **Ll** yi^{23}u·?^{2} *grandfather* [1] (the initial *y was lost in the forms of **Ll** through **Le**—except **Lc**—long ago; if its loss had been recent the vowel would have been fronted to ö—except in **Le**—as happened in **Lc**) **Lc** mi yö? **Le** ñú^{4}u·?^{2}

grandfather [1] **Qi** yüh?^{42} *grandfather* [1] **Y** yü? *old man* [3] **Co** yö·?^{21} *grandfather* [1].

690 ***yu·ʔ** *above* **Oj** ti^{4}yiʔ^{31} **U** ta^{5}-dʸeiʔ^{32} **Tp** geiʔ^{31} **Pa** gyuʔ^{31} **VN** gyuʔ **Oz** gyöʔ **Ll** yö·ʔ^{31} **Pe** yöʔ **A** yöʔ **Le** yuʔ **Qi** yüh?^{1} or yüʔ^{1} (üh expected) **Co** yöʔ (long vowel expected).

691 ***ya·^{L}** *avocado* **U** ụ^{4}gu^{3}dʸie^{3} *chinene, a kind of avocado* **Tl** gweg^{3}dyú^{3} (accent not expected) **S** kwi^{1}dyu^{1} (tone 2 expected) **Qe** ku dyu **Tp** kuɨg^{2}giog^{2} **Pa** gu^{2}gyew^{2} *chinela, a kind of avocado* **Oz** mɨ gu yo *chinene* **Ll** mɨ^{31}ku^{1}yo·^{3} **Lc** mɨ kwɨ ya **Pe** mɨ ku ye **To** mɨ ku ye **A** mɨ kwɨ ye **Le** gu^{3}ya·^{3} **Qi** kwo^{3}yiah^{23}.

692 ***ya·^{L}** *a kind of bird* **Tl** gya^{2}-θay^{2} (vowel reflects pretonic position; tone 3 expected) **Pa** tą^{32} gyew^{2} **Ll** to^{3}yo·^{3}.

693 ***ya·ŋ** *destroy* **Ll** ya·n^{32} **Le** ye·y^{32}.

694 ***ya·ʔ** *shout* **Oj** ʔya^{1} *a shout* (reflects *ʔya rather than *ya·ʔ; may not be cognate) **Tp** gióʔ^{32} **Ll** yo·ʔ^{23} **Lc** yaʔ **Pe** yeʔ **To** yeʔ **Le** ya·ʔ^{4}.

695 ***yụ·ŋ^{L}** *child, baby* **Oj** yị^{2} **U** dʸẹị^{3} **Tl** dąw^{2} (tone 3 expected) **Ch** dąw **M** dẹụ **S** dąị^{2} **Qe** dẹ **Tp** gẹị^{2} **Pa** gyẹ́w^{3} or gyịw^{2} (tone 2 expected) **VN** gyụ **Oz** gyộ **Ll** (ši^{3})yụ·^{3} **Le** ši^{3}yụ·y^{3} **Qi** yụh^{242} or yụ̈^{23} (23 expected although the vowel of the first form fits the reconstruction better) **Co** yộ·^{2}. In most languages the form could reflect a syllable without final *ŋ. However, the vowel reflexes in **M** and **Qe** are different from those for *ụ· and in **Ll-Qi** the vowels require a final *ŋ even though only **Le** shows the actual reflex of *ŋ.

696 ***yụ́·^{L}** [1] *red (inan.)* ***yụ́·ŋ^{L}** [2] *red (an.)* **Oj** yị^{3} [1] **U** dʸẹị^{4} [1] **Tl** dąw^{34} [1] (tone 3 with accent expected) **Ch** dąw [1] **M** dąụ [1] **S** dąị^{23} [1] **Qe** dẹụ [1] **Tp** gẹ́ị^{2} [1] **Pa** gyẹw^{2} [1] gyộ^{2} [2] **VN** gyụ [1] **Oz** gyộ [1] **Ll** yộ·h^{3} [1] yụ·hn^{3} [2] **Le** yụ́·^{3} [1] yụ·y^{3} [2] (accent is expected) **Qi** yụh^{3} [1] **Co** yộ́·^{2} [1] yộ·ŋ^{2} [2] (ụ·ŋ expected).

697 ***yụ·ʔ** *suck* **Oj** yị?^{31} ʔni^{2} **U** dʸẹị?^{2} **Ch** gị (final ʔ expected) **M** gyẹị? **S** kwa yẹị? **Qe** kwa yẹ? **Tp** gẹ́?^{32} **Pa** gyụ́?^{32} *(inan.)* gyộ?^{2} *(an.)* (reflects a syllable closed by *ŋ) **VN** gyụ? **Oz** gyộ? **Ll** yộ·?^{23} (ñ regularly replaces y before any nasalized vowel in the speech of some) **Le** yụ·?^{4} **Qi** yụ?h^{3} (Vh expected) **Co** yộ?r^{2} (short vowel may be due to accent in checked syllable).

698 ***yụ·ʔ** *cigar* **Oj** na^{1}yị?^{31} **U** a^{2}dʸẹị?^{2} **Tl** gị́?^{4} **Ch** gị? **M** gyeiʔ (nasalization expected) **S** yẹị?^{3} **Qe** yẹ? **Tp** nɨ^{1}gẹ?^{2} **Pa** gyụ?^{32} **VN** gyụ? **Oz** gyộ? **To** yộ? **RC** ñộ? (see note under **Ll** form of *yụ·ʔ *suck;* ñ represents a dialect form) **A** yộ? **Qi** yüh?^{42}, yụ?^{3} (Yh expected) **Tm**

gü·ʔ (nasalization expected in **Tm** and **Co** forms) **Co** yöʔ^{2} (long vowel expected). This set is probably related to *yu̯·ʔ *suck.*

699 ***yą·^{L}** [1] ***yu̯·** [2] *swell (inan.)* ***yą·ŋ^{L}** [3] *swell (an.)* **Oj** yę^{2} [1] **U** d^{y}i̯ę^{3} [1] d^{y}ǫ^{3} [3] **Tl** dęw [1] **Ch** dǫ [1] **M** dǫ [1] **S** dǫ́^{2} [1] (accent not expected) **Qe** dǫ [1] *swollen* **Tp** giǫg^{2} [1] **Pa** gyęw^{2} [1] gyǫ^{2} [3] **VN** gyu̯ [2] **Oz** gyǫ [1] **Ll** yǫ·^{3} *(stative inan.)* [1] sɨ^{3}yö̤·^{3} *(active)* [2] yą·n^{3} *(stative an.)* [3] **Pe** yą [1] **To** rɨ yö̤ [2] **A** yę [1] **Le** na yą [1] **Qi** yią^{23} [1] **Co** ye·^{2} [1] yaiŋ^{2} [3] (nasalization expected in both forms, long vowel in the second one.)

700 ***yą·** *squeeze, wring, grind* **Tl** dǫ́^{2} *squeeze sugar cane* **Ch** dǫ **S** dǫ **Qe** kwa dǫ **Tp** giǫ́^{2} *twist* **Pa** gyę́w^{32} **Ll** yǫ·^{32} **Le** yą·^{32} **Co** yę́·r^{21}.

701 ***yą·ŋ** *I know* **U** d^{y}ą^{32} hnia^{4} (reflects a short vowel) **Tl** gyǫ^{42} **Ch** gyǫ **M** gi̯ (dǫ expected; may not be cognate) **Tp** giǫ^{21} hniá^{2} **Pa** gyąw (reflects a syllable without final *ŋ) **VN** gyę hna.

702 ***yą·ʔ** *drape, catch* **Ll** yǫ·ʔ^{32} **Le** yą·ʔ^{32}.

*r

703 ***rə·^{L}** *equal, the same* **Oj** rə^{2} **U** ku^{3}re^{3} **Ch** ku re **S** ku^{2}re^{2} **Tp** rə^{2} *flat, even* **Pa** ku^{2}rɨy^{2} **Ll** rə·^{3} **Le** re **Qi** rəh^{23} **Y** rə **Co** rə·^{1} (12 with accent expected).

704 ***rə·ʔ^{L}** [1] *green (inan.)* ***rə́·ʔŋ** [2] *green (an.)* **Oj** rəʔ^{2} [1] **U** reʔ^{3} [1] **Tl** reʔ^{4} [1] **Ch** reʔ [1] **M** rɨʔ [1] **S** reʔ^{2} [1] **Tp** rəʔ^{2} [1] **Pa** rɨʔ^{2} [1] reʔ^{2} [2] **VN** eʔ [1] **Oz** eʔ [1] **Ll** rə·ʔ^{3} [1] **Le** re·ʔ^{3} [1] ré·yʔ^{4} [2] **Qi** rɨhʔ^{3} [1] (23 is expected, and probably əh is the expected vowel reflex) **Y** rəʔ [1] **Co** rə́·ʔ^{12} [1] rə́ŋʔ^{21} [2].

705 ***ru·ʔŋ** *sibling* **Oj** yi̯^{2} rǫʔ^{1}a^{2} **U** a^{3}ręu̯ʔ^{1} **Tl** rę́wʔ^{1} **Ch** ru̯ʔ *sibling, cousin* **M** ruʔ (reflects a syllable without final *ŋ) **S** rąɨ̣ʔ^{21} **Qe** ręu̯ʔ **Tp** rɨ̣ʔ^{31} **Pa** roʔ^{31} *younger sibling* **VN** uʔ (may reflect a syllable without final *ŋ) **Oz** ö̤ʔ **Ll** u·ʔn^{2} *companion* **Le** ó·yʔ^{2} *companion* **Qi** ruihʔ^{34} **Y** ruʔ **Co** ruiŋʔ^{2} (long vowel expected).

706 ***ra·^{L}** *tobacco* **Oj** ro^{2} **U** ma^{2}ro^{3} **Tl** rew^{3} **Ch** ro **M** ma ro **S** mu ró^{2} (accent not expected) **Tp** hmɨ^{1}rau^{2} **Pa** rəw^{2} **VN** o **Oz** mo ö **Ll** me^{31}ro·^{3} **Le** ra·^{3} **Qi** roh^{23} **Co** ro·^{2}.

707 ***rá·^{L}** *sweet* **Oj** ro^{3} **U** ro^{4} **Tl** réw^{3} **Ch** ro **S** ró^{23} **Tp** ráu^{2} **Pa** rə́w^{2} **VN** o **Oz** ö **Ll** ro·h^{3} **Le** rá·^{3} **Qi** roh^{3} **Co** ró·^{2}.

708 ***rɨ̣·** [1] ***ri̯·** [2] ***ri̯·ŋ** [3] *set (hen, on eggs)* **Tp** rąg^{32} [1] **Pa** rę^{32} [2] or [3] **Ll** ka^{23}i̯·h^{3} *set* [2] ka^{23}i̯·h^{2} *embrace (inan.)* [2] ka^{23}i̯·hn^{23} *embrace (an.)* [3] **Le** na^{3}i̯·^{3} *being set on* [2] i̯·^{4} [2] **Co** rɨ̣́·^{2} [1].

709 ***rụ·LH** [1] ***rụ·ʔ** [2] ***ruʔ** [3] *wash* **Oj** rọʔ31 ʔni2 [2] **U** rạụ3 [1] **Tl** rạw34 *(clothes)* [1] rawʔ4 *(fruit, meat)* [3] **Ch** rạw [1] rụʔ [2] **M** rauʔ [3] **S** kwa1rạḭ32 [1] **Qe** kwa rẹụ [1] **Tp** rạg32 [1] **Pa** rạw32 [1] rạʔ32 [2] (ọ expected) **Ll** ụ·ʔ32 [2] **Le** ụ·4 *(clothes)* [1] ụ·ʔ32 *(dishes)* [2] **Qi** rụhʔ42 *(imper.)* [2] **Co** rụʔ2 [2] (long vowel expected) ruʔr2 [3].

710 ***rạʔ** *bear (weight)* **U** rọʔ4 **Tl** rọ́ʔ4 **Qe** rọʔ **Pa** rọ́ʔ32 **Ll** ọ·ʔ23 *(inan.)* ạ·ʔn23 *(an.)* (reflects *rạ·ʔŋ) (the **Ll** and **Le** forms reflect a long vowel) **Le** za3rạ́·ʔ4 **Qi** rọʔ **Co** rọ́ʔ2.

711 ***rạ·** [1] *lie, stretched out (inan. when distinguished)* ***rạŋ** [2] *lie, stretched out (an.)* **Oj** rọ2 [1] **U** ta5rọ32 ma2hdʸi3 *the document will be made* [1] **Tl** la2rẹw34 [1] **Ch** ne rọ [1] **S** ma rọ [1] **Pa** rọ32 [1] **Oz** ọ̈ [1] **Ll** rọ·3 [1] rạ·n23 [2] **Le** rạ·3 [1] **Qi** rọh4 [1] rạḭh4 [2] **Co** raiŋ [2] (rạ·iŋ expected).

712 ***rạ·** [1] *fly, rise (intr.)* ***rạ·ŋ** [2] *raise (tr.)* **Tl** rẹ́w3 [1] rụ́3 *leap, jump* (probably not cognate) **Ch** ma rọ [1] **S** ka3rọ23 [1] **Tp** rạ́ụ2 [1] **Pa** rẹ́w2 [1] rọ́2 [2] **Ll** rọ·h3 [1] **Le** rạ·y32 [2] **Co** rá·ŋ21 [2] (nasalization expected).

713 ***rạ·** *get wet* **Ll** ka3rọ·2 *(inan.)* ka3rạ·n2 *(an.)* (reflects a syllable with final *ŋ) **Le** ʔí4rạ́·2a2 hmḭ·3 *(first person plural).*

*ʔg

714 ***ʔgḭ·** [1]~***ʔgḭ·L** [2] *tear, burst* **Oj** ki2 ʔni2 [2] a4 ḭ2 ʔni2 [1] **U** kag3 [1] **Tl** kág2 [1] **Ch** kakag [1] ki [2] **S** ka3kaḭ2 [1] **Tp** gág32 [1] **Pa** gḭ́y32 [1] gyiw2 [2] **Oz** gḭ [1] **Ll** gḭ·3 [1] gḭ·3ra2 [2] **Le** ma43gḭ·3 [1] rí4gyḭ·3 [2] **Qi** ʔgḭh4 [1] **Co** sḭʔgḭ·1 [1].

715 ***ʔgaʔ** [1] ***ʔga·** [2] *be afraid* **Oj** koʔ [1] **U** koʔ43 [1] **Tl** koʔ4 or kóʔ4 [1] **S** koʔ23 [1] **Qe** kauʔ [1] **Tp** góʔ32 [1] **Pa** goʔ32 [1] gəw2 *fearful* [2] **VN** goaʔ [1] goa *(first person singular)* [2] **Oz** goʔ [1] **Ll** mḭ3gəʔn2 *was startled* [1] (reflects syllable with *ŋ) go·3 *timid* [2] u23go3 u23ʔyö23 *awe* (may have developed from [2] but reflects short vowel) **Qi** ʔgohʔ34 [1] (h not expected) **Y** ʔgaʔ *startling* [1] ʔgo *awe* [2] **Co** ʔgoʔr2 [1].

*ʔm

716 ***ʔmḭLH** *hearth stones* **Tl** ku2még4 **S** ku1ʔmḭ32 **Pa** kạw1 ʔmḭw32 **Ll** kụ·h2 ǰi23ʔmḭ·h2 (ʔmḭ3 expected) **Le** mḭ kụ ši mḭ.

717 ***ʔmḭʔŋ** *stalk, e.g., of corn* **Tl** magʔ4 (probably reflects stem without final *ŋ) **Ll** ʔmḭʔn3 **Le** mḭyʔ.

718 ***ʔmḭ·L** *excrement* **Oj** lo2ʔmḭ31a2 *intestines* **U** ti2ʔụ3 **Tl** mag3 **Ch** ʔmag

M kwu ma (initial ʔ expected) **S** ʔmaɨ^{2} **Qe** ʔmaɨ ca kwa *horse manure* **Tp** ti^{1}ʔmíg^{2} (accent not expected) **Pa** ʔmɨy^{2} **VN** ʔmaɨ **Oz** ʔmɨ hmɨ **Ll** ʔmɨ·^{3} **Le** mɨ·^{3} **Qi** ʔmɨh^{23} **Co** ʔmɨ·^{2}.

719 ***ʔmɨ·ŋ** *new* **Oj** ʔmɨ^{4} **U** ʔu̧^{34} **Tl** meg^{34} **Ch** ʔmeg **M** ʔmɨ **S** ʔmaɨ^{32} **Qe** ʔmaɨ **Tp** ʔmí^{2} **Pa** ʔmɨ́y^{2} **VN** ʔmɨŋ **Oz** ʔmɨ **Ll** ʔmɨ·n^{32}~ʔmɨ·hn^{2} **Lt** mɨ (ɨy expected) **Qi** ʔmɨh^{3} *(inan.)* ʔmui^{3} *(an.)* (uih expected) **Co** ʔmí·^{2} (final ŋ expected). Stems with and without final *ŋ may have alternated. Cf. **Qi** forms. **Tl, Ch, M, Tp, VN,** and **Ll** reflect final *ŋ. **Lt** and **Co** reflect no final *ŋ. Others are ambiguous.

720 ***ʔmí·^{L}** *earlier* **U** ma^{3}ʔu̧^{4} **Tl** mág^{3} **Tp** ʔmíg^{2} **Pa** ʔmɨ́y^{2} ʔew^{2} **Ll** ʔmɨ·h^{3} **Co** ʔmí·^{2}.

721 ***ʔmɨ·ʔ^{H}** *thick* **Oj** ʔmɨ^{1} (ʔmɨʔ^{1} expected; form may reflect *CV) **U** ʔu̧ʔ^{2} (tone reflects *CV́·ʔ) **Tl** megʔ^{1} **S** ʔmɨʔ^{32} (3 expected) **Tp** ʔmɨʔ^{31} **Pa** ʔmɨʔ^{1} **Ll** ʔmɨ·ʔ^{2} **Qi** ʔmɨhʔ^{32} (42 expected) **Co** ʔmɨ^{1} (ʔmɨ·ʔ^{21} expected; form may reflect *CV).

722 ***ʔmɨ·ʔ^{LH}** *cloth* **Oj** sɨ^{1}ʔmɨʔ^{2} **U** a^{2}ʔu̧ʔ^{3} **Tl** mégʔ^{4} (accent not expected) **Ch** ʔmegʔ **M** ʔmɨʔ **S** ʔmɨʔ^{3} (32 expected) **Tp** tsɨ^{1}ʔmɨʔ^{2} *diaper* **Pa** ʔmɨwʔ^{32} **VN** ʔmaɨʔ **Oz** ʔmɨʔ **Ll** ʔmɨ·ʔ^{3} **Le** mɨʔ **Qi** ʔmɨʔ^{3} (ih and 4 expected) **Co** ʔmɨʔ^{2}.

The reflexes of *ɨ(ʔ) after *ʔm in **U, Tl, Ch,** and **S** are believed to be backed since no nonbacked reflexes are attested. However, it is possible that the backed syllabics really reflect forms with *ɨ̨ rather than *ɨ.

723 ***ʔmɨ** *sew* **Oj** ʔmi^{3} ʔni^{2} **U** ʔu̧^{23} **Tl** még^{2} **Ch** ʔmegs **S** kwa ʔmɨ **Tp** ʔme^{32} **Pa** ʔme^{32} **Ll** ʔmi^{23} **Qi** ʔmih^{24} (h not expected) **Co** ʔmir^{2}. This set may be related to *ʔmɨ· *mend.*

724 ***ʔmíʔ^{LH}** *sore* **Oj** ʔmɨʔ^{1} (i and 4 expected) **U** ʔu̧ʔ^{43} **Tl** mág^{4} (final ʔ expected) **Ch** ʔmagʔ **S** ʔmaʔ **Tp** ʔméʔ^{32} **Pa** ʔmiʔ^{32} **VN** ʔmeiʔ **Ll** ʔmiʔ^{2} *scar* **Qi** ʔmiʔ^{3} **Co** ʔmiʔ^{2}.

725 ***ʔmɨ·^{LH}** *mend* **Tl** mág^{2} (ay and 34 expected) **Tp** ʔméi^{32} za^{2} (accent not expected) **Pa** ʔméy^{32} (accent not expected) **Ll** ʔmi·^{3} **Co** ʔmir^{2} (long vowel expected). This set may be related to *ʔmɨ *sew.*

726 ***ʔmɨ·ʔ** *blink* **U** ʔmeiʔ^{2} **Tl** méyʔ^{2} **Tp** ʔmeʔ^{2} za^{2} **Pa** ʔmíʔ^{2} **Ll** ʔmɨ·ʔ^{23} **Co** ʔmí·ʔr^{12}.

727 ***ʔme** *hide* **Oj** ʔma^{1} ʔni^{2} **U** si^{2}ʔma^{32} **Tl** má^{2} **Ch** ʔma **S** ma kwa ʔma co **Tp** ʔma^{32} za^{2} **Pa** ʔma^{32} **Ll** ʔme^{23} **Le** ma me **Qi** ʔmah^{4} (reflects *e·) **Co** ʔmé·iŋ^{12} (reflects *e·ŋ). **Tl, Ll,** and **Co** reflect *^{HL}. **Tp** and **Pa** reflect *^{LH}. **Qi** reflects either.

728 ***ʔme·** [1] ***ʔme·ʔ** [2] *press down* **S** ʔmu^{32} [1] **Tp** ʔmú^{32} za^{2} [1] **Pa** ʔmów^{32} [1] ʔmoʔ^{32} [2] **VN** ʔmiʔ [2] **Ll** ʔme·^{23} [1] **Co** ʔmé·ʔr^{12} [2].

729 ***ʔmé·H** *leaf-cutter ant* **Oj** ʔmo^{1} **Tl** méw^{1} **Ch** ʔmo **S** ci^{2}mu^{2}ʔmu^{12} **Tp** i^{1}ʔmú^{1} **Pa** ʔmów^{1} **Ll** ʔme·h^{2} **Le** me **Qi** ʔmah^{1} **Co** ʔmé·^{1}.

730 ***ʔmé·** *sharp* **Oj** ʔmoʔ^{4} (final ʔ not expected) **U** ʔu̯e̯^{23} **Tl** mó^{2} **Ch** ʔmo **S** ʔmu^{3} (does not reflect accented syllable) **Qe** ʔmo **Tp** ʔmu^{3} **Pa** ʔmo^{3} **VN** ʔmi **Oz** ʔme **Ll** ʔme·^{23} (final h expected) **Qi** ʔma^{3} (Vh expected) **Co** ʔmé^{1} (long vowel expected). **Oj, Tl, Tp, Pa, Ll,** and **Qi** reflect *HL. **U, S,** and **Co** reflect *H.

731 ***ʔme·ʔ** [1] ***ʔma·ŋ** [2] *thank you* **Oj** li^{1}ʔmaʔ^{31} [1] **U** di^{2}ʔmaʔ^{32} [1] **Tl** ti^{3}maʔ^{2}nu^{3} [1] **S** tya^{1}ʔmaʔ^{1} [1] **Tp** ti^{1}ʔmagʔ^{21} [1] **Pa** di^{1}ʔmaʔ^{1} [1] **Oz** ti ʔmaʔ [1] **Qi** ʔmah^{4}moʔh^{24} [2] **Co** ʔmá·m^{1}baʔ^{1} [2].

732 ***ʔmé·ʔH** *mole* **U** a^{2}ʔmaʔ^{2} **Tl** máʔ^{1} **Ch** ʔmaʔ **S** ʔmáʔ^{1} **Tp** i^{1}tə^{2}ʔmɨ^{3} (may not be cognate; ʔmágʔ^{1} is probably expected) **Pa** ʔmáʔ^{1} **Oz** ča ʔmeʔ **Ll** ʔmeʔ^{2} **Le** méʔ^{1} **Co** ʔmeʔ^{1} (accent is expected).

733 ***ʔmaL** *tree* **Oj** ʔma^{2} **U** na^{2}ʔma^{3} **Tl** ma^{3} **Ch** ʔma **M** ʔma **S** ʔmá^{2} (accent not expected) **Tp** nɨ^{1}ʔma^{2} **Pa** ʔma^{2} **VN** ʔma **Oz** ʔma **Ll** ʔmo^{3} **Le** ma^{3} **Qi** ʔmo^{34} **Y** ʔma **Tm** ʔma **Co** ʔma^{12}. The following set may be related to this one.

734 ***ʔmaL** *manioc* **Oj** na^{1}yi^{2}ʔma^{2} **Tl** sai^{42}ma^{3} **Tp** sei^{21}ʔma^{2} **Pa** sey^{1}ʔma^{2} **Ll** mɨ·^{31} i^{2}ʔmo^{32} (3 expected).

735 ***ʔma** *robalo,* a kind of fish **Oj** ʔma^{1} **U** a^{2}ʔma^{32} **Tl** ma^{2} **Ch** ʔma **S** ʔma^{32} **Pa** ʔma^{31} **Ll** ʔmo^{2} **Lt** ma.

736 ***ʔmáLH** *(fishing) net* **Oj** ʔma^{3} **U** a^{2}ʔma^{43} **Ch** ʔma **S** ʔma^{23} **Tp** tsɨ^{1}ʔmá^{32} **Pa** ʔmá^{32} **Oz** ʔma **Ll** ʔmoh^{2} **Lt** ma **Qi** ʔmo^{3} **Co** ʔmá·^{21} (length not expected).

737 ***ʔmaʔ** *expensive* **Oj** ʔmoʔ^{1} **U** ʔu̯e̯ʔ^{2} **Tl** móʔ^{1} **Ch** ʔmoʔ **S** ʔmuʔ^{32} **Tp** ʔmuʔ^{31} **Pa** ʔmóʔ^{1} **VN** ʔmoaʔ **Oz** ʔmoʔ **Qi** ʔmohʔ^{1} (reflects long vowel) **Co** ʔmoʔ^{1}.

738 ***ʔma·H** *mucous, a cold* **Oj** ʔmo^{31} **U** ti^{2}ʔu̯e̯^{32} **Tl** mo^{4} **Ch** lɨs ʔmo **S** ʔmu^{12} (reflects an accented syllable) **Tp** ti^{1}ʔmu^{1} **Pa** ʔmow^{1} **Ll** ʔmo·^{2} *chapping* **Qi** ʔmoh^{2} **Co** ʔmo·^{1}.

739 ***ʔma·H** *dew* **Tp** ʔmu^{31} **Pa** hmɨ^{1}ʔmow^{1} **Ll** ʔmo·^{2}. This set may be related to *ʔma· *drizzle* and possibly to *ʔma·L *ice, hail.*

740 ***ʔma·L** *ice, hail* **U** o^{1}ʔu̯e̯^{3} **Tl** mew^{3} **Ch** ʔmo **S** ʔmú^{2} (accent not expected) **Tp** ti^{1}ʔmu^{2} **Pa** ʔmu^{2} **VN** ʔmo **Oz** ʔmo **Le** ma·^{3} **Qi** ʔmoh^{23} **Co** ʔmo·^{2}.

741 ***ʔma·** *drizzle* **Oj** hmɨ^{2} ʔmo^{31} *fog* **Ch** ʔmo *fog* **Tp** ʔmu *fog* **Pa** hmɨ^{32}ʔmo^{3} **VN** hmɨ ʔmoa *fog* **Ll** ʔmo·^{3} **Le** ma. This set may be related to one or both of the two preceding sets.

742 ***ʔmá·L** *tepid* **U** ʔu̯e̯^{4} **S** ʔmu^{23} **Pa** ʔmó^{2}.

743 ***ʔmáˈHL** *death* **U** ʔu̯e̯^{34} **S** ʔmú^{32} (23 expected) **Pa** ʔmów^{3} (accent not expected) **Ll** ʔmo·h^{2} (23 expected) **Co** ʔmó^{2} (long vowel expected).

744 ***ʔma·ʔ^{H}** *market* **U** he^{1} ʔmaʔ^{1} (32 expected) **Tl** maʔ^{4} (tone 1 expected) **S** ʔmaʔ^{21} (3 expected) **Tp** ʔmaʔ^{32} (the expected reflex 31 may be a variant) **Pa** ʔmaʔ^{1} *market stall* **Ll** ʔmo·ʔ^{2} **Qi** ʔmohʔ^{42} **Co** ʔmo·ʔ^{21}.

745 ***ʔma·ʔ^{LH}** *mojarra, a kind of fish* **U** a^{2}ʔmaʔ^{3} **Tl** maʔ^{4} **Ch** ʔmaʔ **S** ʔmáʔ^{2} (32 without an accent expected) **Tp** i^{1}ʔmaʔ^{2} **Pa** ʔmaʔ^{32} **Oz** ʔmoʔ **Ll** ʔmo·ʔ^{3} **Le** maʔ **Qi** ʔmohʔ^{4} **Co** ʔmó^{12} (ʔmo·ʔ^{2} expected).

746 ***ʔma·ʔ^{HLH}** *pay* **Oj** hma^{1} ʔmaʔ^{31} ʔni^{2} **U** ma^{4}ʔmaʔ^{32} **Tl** meg^{2}maʔ^{42} **Ch** e ma ʔmaʔ **S** ma^{2}ʔmaʔ^{1} **Tp** ʔmaʔ^{31} **Pa** ʔmaʔ^{1}.

*ʔn

747 ***ʔnɨ^{LH}** *three (inan.)* **Oj** ʔni^{2} **U** ʔneg^{3} **Ch** ʔneg **M** ʔni (possibly e) **S** ʔni **Qe** ʔni (possibly e) **Tp** ʔni **Pa** ʔniw^{32} **VN** ʔni **Oz** ʔni (possibly e) **Ll** ʔni^{3} **Le** ni^{3} **Qi** ʔni^{3} (tone 4 expected). Most languages use this stem as the second element of the numeral *thirteen,* but a few use the stem *ʔni: **Ll** gi^{23}ʔni^{3} **Le** gya ni.

748 ***ʔnɨ́^{LH}** *corn cob* **Oj** či^{1}ʔni^{3} **U** a^{2}ʔneg^{43} **Tl** nég^{1} (tone 3 expected) **Ch** ciʔneg **M** ciʔni **S** si^{1}ʔni^{23} **Tp** ni^{1}ʔni^{32} (the **Tp** and **Pa** forms reflect a syllable without accent) **Pa** ʔniw^{32} **VN** ʔni **Oz** naʔni **Ll** ʔnih^{2} **Le** nani **Ql** ʔni^{4} (the **Qi** and **Co** forms reflect a syllable without accent) **Co** ʔni^{2}.

749 ***ʔni·** [1] *sell (inan.)* ***ʔni·ŋ** [2] *sell (an.)* **Oj** ʔni^{31} ʔni^{2} [1] **U** ʔnag^{3} [1] **Tl** nág^{4} [1] **Ch** ʔna [1] (ag expected) **S** ʔnai^{1} ʔnu^{3} [1] **Qe** ʔna [1] (possibly ə) **Tp** ʔnag^{32} [1] **Pa** ʔnay^{32} [1] ʔnɔ́^{32} [2] **VN** ʔnai [1] **Ll** ʔni·^{23} [1] ʔni·n^{23} [2] **Qi** ʔnih^{4} [1] **Co** ʔni·r^{1} [1].

750 ***ʔní·^{L}** *widow* **Oj** ca^{2} mi^{3}ʔni^{3} **U** a^{3}ʔnag^{4} **Tl** ca^{3} nag **Ch** ʔyuʔnag **S** ca^{2}ʔnai^{23} **Tp** ʔio^{31} ʔnág^{2} **Pa** za^{2}ʔníy^{2} **Ll** mih^{3} ʔni·h^{3} **Le** za^{3} ní·^{3} *orphan* **Ql** ca^{3} ʔnih^{3} *orphan* **Co** dia ʔní·^{1} (tone 2 expected).

751 ***ʔni·ʔ^{H}** *chicken* **Oj** ti^{2}ʔnaʔ^{1} *hen* (i expected) **Ll** ʔni·ʔ^{2} **Le** ni·ʔ^{2}.

752 ***ʔniˈL** [1] ***ʔnuˈL** [2] ***ʔniuˈL** [3] *you (sg.)* **Oj** ʔni^{2} [1] **U** ʔnei^{3} [1] **Tl** nu^{3} [2] **Ch** ʔnu [2] **M** ʔnyu [3] **S** ʔnu^{2} [2] **Tp** ʔne^{2} [1] **Pa** ʔniw^{2} [1] (may reflect a long vowel) **VN** ʔnyu [3] **Oz** ʔne [1] **Ll** ʔni^{3} [1] ʔnö^{3} [3] **To** ʔni [1] ʔnö [3] **RC** ʔnö [3] **A** ʔnö [3] **Le** ñu^{3} [3] **Qi** ʔnü^{34} [3] **Co** ʔnö^{12} [3].

753 ***ʔniˈL** *war* **Oj** ʔni^{2} **U** ʔnai^{3} **Tl** nay^{3} **Ch** ʔney **S** ʔnei^{2} (e expected) **Qe** ʔnai **Tp** ʔnei^{2} **Pa** ʔniw^{2} **Qi** ʔnih^{23} **Co** ʔni·^{2}.

754 ***ʔni·HLH** *rope* **Oj** na^{1}ʔñi^{31} **U** a^{2}ʔnai^{32} (tone 1 expected) **Ch** ʔney **S** ʔnye **Qe** ʔnyai **Tp** sɨʔne (ei expected) **Pa** ʔney^{31} (tone 1 expected) **VN** ʔnei **Oz** ʔnɨ **Ll** ʔñi·^{232} **Le** ñi·^{42} **Qi** ʔnih^{242}. The reflexes of *n, whether or not preceded by *ʔ or *h, are sometimes palatalized in the **Oj, S,** and **Ll** languages before *i (or *iu and *ia) and sometimes not. The distributional patterns are quite complex. A few sets, of which this one is a good example, seem to be clearly palatal. Others, such as the other sets here labeled *ʔni·, are not palatal and might suggest that there was a contrast of palatal and nonpalatal nasals before *i. In general, however, the distribution of the nasals is such that it would be difficult to distinguish the palatal sets from the nonpalatal ones. Furthermore, it would be awkward to posit a consonantal contrast which could be demonstrated just before one vowel.

755 ***ʔni·** *break (intr.)* **Pa** ʔnay^{32} **Ll** ʔni·^{23}.

756 ***ʔni·** *avocado* **S** kwɨʔne **Qi** kwo^{4}ʔnih^{4}.

757 ***ʔneʔ** [1] ***ʔniʔ** [2] *woodpecker* **Oj** tą^{2} mi^{4}ʔneʔ^{4} [1] **U** a^{1}ma^{3}-ʔneʔ^{5} [1] **Tl** mané^{3} [1] **Tp** i^{1}me^{2}-ʔnéʔ^{2} [1] **Pa** bi^{1}ʔníʔ^{1} [2] **Ll** ʔniʔ^{3} [2].

758 ***ʔna** *back* **U** ʔna^{23} **Tl** na^{42}ceg^{3} **Ch** ʔna **M** maʔna **S** ʔna **Ll** me·^{23} ʔno^{2}.

759 ***ʔna** *break (intr.)* **U** ra^{3}ʔna^{32} *cut (stative)* **Pa** ʔná^{2} *(past).* This set may be related to the one immediately following.

760 ***ʔna** [1] ***ʔna·** [2] ***ʔnaʔ** [3] *piece* **U** ka^{3}ʔna^{32} *half (cup, glass)* [1] **Tl** ná^{1} [1] **Ch** kaʔna *half* [1] **S** kaʔna piʔ [1] **Qe** kaʔna *half* [1] **Tp** ʔnau^{31} [2] **Pa** ku^{2}ʔna^{2} *a while* [1] ka^{2}ʔnaw^{31} *half* [2] **VN** ʔnao [2] **Ll** ʔno·^{31} [2] **Qi** ʔnoʔ^{1} [3] **Co** ʔnáʔ^{1} *piece* [3] kaʔnáʔ^{1} *half* [3].

761 ***ʔnaʔ** [1]~***ʔniaʔ** [2] *look for (inan.)* ***ʔnaʔŋ** [3]~***ʔniaʔŋ** [4] *look for (an.)* **Oj** a^{4}ʔnoʔ^{3} ʔni^{2} [1] ʔneʔ^{2} ʔni^{2} [2] a^{4}ʔnaʔ^{3} [3] ʔnaʔ^{2} ʔni^{2} [4] **U** ʔnoʔ^{4} [1] ʔnaʔ^{3} [3] **Tl** newʔ^{4} [1] **Ch** ʔnoʔ [1] **S** ʔnoʔ [1] **Tp** ʔnoʔ^{2} [1] **Pa** ʔno^{32} [1] ʔnew^{2} [2] (the previous two forms reflect a long vowel without glottal closure) ʔnaʔ^{32} [3] ʔnyaʔ^{32} [4] **Ll** ʔnoʔ^{23} [1] ʔne·ʔ^{232} [2] ʔna·ʔn^{3} [3] ʔne·ʔn^{23} [4] **Co** ʔnoʔr^{2} [1]. There is considerable uncertainty about which if any of the stems should be reconstructed with a long vowel. The first two **Pa** forms, most **Ll** forms, and the **Co** form suggest a long vowel while the others are ambiguous or favor a short vowel.

762 ***ʔniúLH** *house* **Oj** sɨ^{1}ʔñi^{3} **U** a^{2}ʔnei^{43} **Tl** ní^{3} **Ch** ʔnyu **M** ʔnyu **S** ʔnyu^{23} **Qe** ʔnyi **Z** ʔnyi **Tp** cɨ^{1}ʔné^{32} **Pa** ʔnyú^{32} **VN** ʔnyu **Oz** ʔne **Ll** ʔnöh^{2} **Le** ñu **Qi** ʔnü^{3} **Co** ʔnő·^{21} (short vowel expected).

763 ***ʔniúLH** *scorpion* **Oj** ha ʔ^{3}ñi^{3} (initial ʔ expected; perhaps ʔ closing the preceding syllable is a factor) **U** a^{1}ʔnei^{43} **Ch** ʔnyu **S** ʔnyu **Qe** ʔnyi **Tp** iʔne **Pa** cyí^{1} ʔnyú^{32} **Oz** ciʔne **Ll** ʔñöh^{2} **Le** ñu.

764 ***ʔniu·HLH** *hunter* **U** a^{1}cai^{3} ʔnai^{1} (in this and several other forms the preliminary morpheme means *dog)* **Tl** cag^{3} nay^{42} **S** ci^{1}ʔnye^{1} (ei expected) **Qe** ci ʔnyai **Tp** ʔnei^{21} **Pa** ziy^{2} ʔnew^{1} **VN** zi ʔnui **Oz** ʔnei **Ll** ʔñö·^{232} **Le** zi ñu **Qi** cih^{23} ʔnüh^{242} **Co** di ʔnö·^{12}.

765 ***ʔnia?** *it is necessary* **U** ʔnia?^{3} (reflects a long vowel) **Tl** nó?^{2} **S** ʔnyó?^{3} **Tp** ʔnió?^{32} **Pa** ʔnyu?^{32} **Ll** ʔne?^{2}.

766 ***ʔnia·** [1]~***ʔna·** [2] *want* **Oj** ʔne^{3}a^{2} [1] ʔno^{3} hna^{3} [2] **U** ma^{2}-ʔnie^{34} [1] ma^{2}ʔno^{5} [2] **Tl** nyó^{3} [1] **Ch** ʔnyo [1] **S** ʔno [2] **Tp** ʔnio^{3} [1] **Pa** ʔnyu^{3} [1] ʔno^{3} hní^{2} [2] **VN** ʔno hna [1] **Oz** ʔno [2] **Ll** ʔne·h^{23} [1] ʔna·hn^{23} [2] **Qi** ʔnah^{23} [1] **Co** ʔnér^{2} [1] *it is necessary* (long vowel expected).

767 ***ʔnia·ʔHL** *you (pl.)* **Oj** ʔna^{2} (the vowel and tone match in spite of the lack of final glottal stop) **Tl** na?^{4} **Ch** ʔna? **M** ʔnya? **S** ʔno? **Tp** ʔnia?^{2} **Pa** ʔnya?^{32} **Oz** ʔna? **Ll** ʔne·?^{23} **Lt** ña? **Qi** ʔnah?^{13} (tone 4 expected).

*ʔŋ

768 ***ʔŋaH** *tepezcuintle, a wild rodent* **Oj** ʔŋa^{1} **U** a^{2}ʔŋa^{32} **Tl** ŋa^{2} **Ch** ʔŋa **S** ʔŋa **Tp** i^{1}ʔŋa^{1} **Pa** ʔŋa^{1} **VN** ʔŋa **Ll** ʔŋo^{2} **Le** ŋa **Qi** ʔŋo^{2} **Co** ʔŋa^{1}.

769 ***ʔŋaH** *forest* **U** i^{2}ʔna^{32} (ŋ expected) **S** ʔŋa^{1} **Tp** ʔŋa^{1} **Pa** ʔwa^{3} ʔŋa^{1} *virgin land* **Ll** ʔŋo^{2} **Co** ʔŋa^{1}.

770 ***ʔŋa?** [1] ***ʔŋa·?** [2] ***ʔŋa·** [3] *on the other side* **U** ʔŋo?^{3} [1] **Ch** hoʔŋo [3] **S** tiʔŋo?^{32} [1] **Tp** ʔŋo?^{31} [1] **Pa** ʔŋo?^{31} **Ll** ʔŋo·?^{232} *on the opposite page* [2] ʔŋo·h^{2} [3] **Qi** ʔŋoh?^{42} *be on one side* [2].

771 ***ʔŋiuL** *bobo, a kind of fish* **U** a^{2}ʔñi^{3} **Tl** ŋi^{3} **Ch** ʔnyu **M** nyu (initial ʔ expected) **S** ʔnyu^{2} **Qe** ʔnyi **Tp** i^{1}ʔŋi^{2} **Pa** ʔŋyu^{2} **VN** hwoʔ ŋyu (initial ʔ expected) **Oz** saʔñu **Ll** ʔñö^{3} **Le** ñu^{3} **Qi** ʔñü^{34} **Y** ʔnü (ʔŋ expected; the reflexes of *h/ʔŋ before *iu are unpredictable in **Y** perhaps because of inconsistent recording) **Co** ʔŋö^{12} (iö expected).

772 ***ʔŋiuʔŋ** *waist* **U** a^{2}lo^{3}ʔñi?^{2}-i^{3} *his belt* **S** ʔnyaʔ (u is probably the expected reflex) **Qe** ʔnyaiʔ **Tp** o^{21}ʔŋi?^{3} **Pa** ʔŋyo?^{3} **VN** aʔŋyu? **Oz** ʔñu? **Ll** ʔñuʔn^{23} **Qi** ʔñui?^{4} **Co** ʔŋioŋ?^{2}. This set may be related to *ʔŋiu·? *tie up.*

773 ***ʔŋiuL** *thick* **Oj** ʔñi^{2} **U** ʔñei^{3} **Ch** ʔnyi **S** ʔnyei^{2} **Qe** ʔnyai **Tp** ʔŋei

Pa ʔŋyew^{2} **Ll** ʔñu·n^{3} (reflects a syllable with final *ŋ) **Qi** ʔñüh^{23} **Y** ŋü (initial ʔ expected).

774 ***ʔŋiu·** *handful* **U** ʔñei **S** kaʔnye (ei expected) **Pa** kụʔŋyew **Oz** ʔñö.

775 ***ʔŋiu·** [1] *tie (inan.)* ***ʔŋiu·ŋ** [2] *tie (an.)* ***ʔŋiu·ʔ** [3] *tie up* **Oj** či^{3}ʔñiʔ^{31} ʔni^{2} [3] **U** ʔñei^{3} [1] **Tl** ŋí^{3} [1] **Ch** ʔnyui [1] (i expected) **M** ʔnyi [1] **S** manɨʔnyei [1] **Qe** laʔnyai [1] **Tp** ʔŋéi^{2} [1] or possibly [2] **Pa** ʔŋyew^{32} [1] ʔnyo^{32} [2] **VN** ʔŋyu [1] **Ll** ʔñö·^{3} [1] ʔñu·n^{3} [2] rɨ^{3}ʔñuʔn^{2} *tied up* [3] (reflects a syllable with final *ŋ) **Le** ga^{3}ñu·^{43} [1] **Qi** ʔñu^{1}na^{2} [2] (uh expected) **Co** ʔŋió·ʔr^{12} [3].

776 ***ʔŋlá**^{L} [1] *five (inan.)* ***ʔŋiáŋ**^{L} [2] *five (an.)* **Oj** ʔña^{3} [1] and [2] **U** ʔña^{4} [1] **Tl** ŋyá^{3} [1] **Ch** ʔnya [1] **M** ʔnya [1] **S** ʔnya^{23} [1] **Tp** ʔŋiá^{2} [1] **Pa** ʔŋyí^{2} [1] ʔŋyáw^{2} [2] **VN** ʔŋye [1] ʔŋyaŋ [2] **Oz** ʔña [1] **Ll** ʔñeh^{3} [1] ʔñehn^{3} [2] **Le** ʔñe [1] ʔñan [2] **Le** ña [1] ñe [2] (final y expected) **Qi** ʔña^{3} [1] ʔñei^{2} [2] (24 expected in both forms) **Y** ʔñe [1] **Co** ʔŋia^{12} [1] (accent expected).

777 ***ʔŋiá**^{LH} [1] ***ʔŋá**^{LH} [2] ***ʔŋiaʔ**^{LH} [3] *he himself, he alone* **Oj** ʔñeʔ^{2} [3] (4 expected) **U** ʔña^{3} [1] (probably reflects a short unaccented syllable) **Tl** ŋa^{3} [2] (accent expected) **S** ʔŋa^{32} [2] (accent expected) **Qe** ʔŋa [2] **Tp** ʔŋiog^{32} [1] **Pa** ʔŋyéw^{3} *(first person singular)* [1] (32 expected) ʔŋyaʔ^{32} [3] **Ll** ʔñe·h^{2} [1] **Ql** ʔñaʔ^{3} [3] **Y** ʔñeʔ [3] **Co** ŋaʔr [3] (ʔŋ expected).

*ʔw

778 ***ʔwɨ·**^{H} *Ojitlán, a large Chinantec village* **Oj** kọ^{2}ʔwị^{31} **U** go^{3}gụ^{32} **Tl** ʔi héw^{1} gwụ^{4} **Ch** kuʔ ʔwẹg **S** ku^{2}ʔwọ^{3} **Qe** ko ʔụ **Tp** go^{2}ʔuį̣g^{21} **Pa** gu^{2}ʔwịy^{1} **Qi** go^{4}ʔwụh^{2} **Co** ʔwɨ·ŋ^{1}. The nasalized vowels throughout this set are difficult; before *Y the expected consonantal reflexes would be nasals. Some of the forms, e.g. that of **Co**, might be derived from *ɨ·ŋ, but that is not the case with others such as **Qi**. For a discussion of this problem cf. sec. 3.1 of the Introduction.

779 ***ʔwí**^{L} [1] ***ʔwiŋ** [2] ***ʔwiʔ** [3] *peel* **Oj** ʔwɨ^{3} ʔni^{2} *peel it!* [1] **U** ʔueʔ^{2} [3] (reflects *ə rather than *ɨ) **Tl** gwẹ́g^{2} [2] **Ch** na di ʔwị [2] **S** ma di ʔwị [2] **Qe** kwa ʔwạ [2] **Tp** ʔuíg^{2} [1] **Pa** ʔwíy^{2} *(inan. obj.)* [1] ʔwé^{2} *(an. obj.)* [2] **Ll** ʔwɨʔ^{23} [3] **Lt** vɨ [1] **Qi** ʔwuihʔ^{24} [3] (reflects long vowel and final *ŋ) **Co** ʔwɨiŋʔ^{2} [3] (reflects final *ŋ).

780 ***ʔwí**^{HLH} *oven* **U** a^{2}gụ^{2} (reflects initial *w) **Oz** ʔwị **Ll** ʔwị·h^{2} **To** ʔọ this may be a misrecording of ʔwị) **Lt** vị **Ql** ʔwụh^{242} *temascal, sweatbath oven.* As in the set at the beginning of this section, the nasalized vowels throughout this set are difficult.

781 *ʔwɨ·ʔ^LH *peach, orange* U ṵ^4-ʔeuʔ^3 *orange* Pa ʔwuʔ^32 *peach* VN ʔuʔ *orange* Oz mɨ ʔwɨʔ *orange* Ll mɨ^31ʔwɨ·ʔ^3 *peach* Le vɨʔ *peach* Qi ʔwuʔ^4 *plum.*

782 *ʔwəŋ^H *kind* Pa ʔwe^1 zɨ́w^32 Ll ʔwəhn^2 (reflects an accented syllable) Qi ʔwo^2 ci^3 (does not reflect *ŋ).

783 *ʔwə́^H *ribs* Oj mo^2ʔwo^1 S mu^2-ʔwe^12 Qe mo ʔwe Ll ʔwəh^2 *chest* Le vo *chest* Qi mo^2ʔwo^1.

784 *ʔwə́^HL *land* Oj ʔwo^4 U ʔue^34 Tl gwé^2 Ch ʔwe M ʔwɨ S ʔwe^32 (23 expected) Tp ʔuə^3 Pa ʔwa^3 VN ʔwə Oz ʔwa Ll ʔwəh^23 Le vó^4 Qi ʔwo^24 (34 expected) Co ʔwé^2.

785 *ʔwə́ŋ^HL *low* U ʔue^34 (does not reflect *ŋ) Tl gwé^3 (does not reflect *ŋ; tone 2 expected) Tp ʔuɨ^3 Ll ʔwəhn^23 Qi ʔwoi^3 (34 expected) Co ʔwę́^2 (ŋ expected rather than Y) The tones of the Qi and Co forms fit the set labeled *below.* The sets may be related.

786 *ʔwəʔ *figure, letter* Tl gwéʔ^2 Tp ʔuéʔ^2 *spotted* Ll ʔwəʔ^2 Le voʔ.

787 *ʔwə·^HL *night* U ʔue^2 Ch i ʔwe S ʔwá^2 (accent not expected) Qe ʔwe cyo nai *midnight* Tp a^2ʔuə^2 Pa ʔwu^2 VN ʔwa Oz ʔwɨ Ll ʔwə·^23 Le vo·^4 Qi ʔwoh^4 *be night* Y wə (ʔw expected) Co ʔwə́·^12.

788 *ʔwə· [1] *ʔwə·ŋ [2] *ʔwə·ʔ [3] *go out, take out (pl. ref.)* U si^2ʔue^4 *(inan. obj.)* [1] Ch di ʔwe *(inan. obj.)* [1] S li ʔwę *(an. obj.)* [2] Qe ma la ʔwe *(inan. obj.)* [1] Tp ʔuə́ʔ^32 *(inan. obj.)* [3] Pa ʔwɨ^32 *(inan. obj.)* [1] ʔwɨʔ^32 *(inan. obj.)* [3] ʔwa^32 *(an. obj.)* [2] ʔwe^2 *(intr.)* [2] Ll ʔwə·^23 *(inan. obj.)* [1] ʔwə·n^3 *(an. obj.)* [2] ʔwə·n^23 *(intr.)* [2] Le vo [1] Ql ʔwuh *harvest (inan. obj.)* [1] (oh expected) Co ʔwəʔr^2 [3] (reflects an accented syllable).

789 *ʔwə́·^HL *below* Oj tɨ^4ʔwo^4 U ʔue^34 Tl teg^3gwe^34 (2 and an accent expected) Ch ʔwe M ʔwɨ Pa tɨ^3ʔwáy^3 (accent not expected) VN ʔwə Oz ʔwa Ll ʔwə·h^2 (23 expected) Qi fu^4 ʔwo^3 Co wę́^2 (initial glottal stop expected). This set may be related to *ʔwə́ŋ^HL *low.*

790 *ʔwə́·ŋ^LH *alone* ʔṵę^5 *(first person singular)* ʔṵęʔ^43 *(second person)* (this form has the matching tone) Tl gwę́^4 S ʔwę^2 *(first person singular)* Qe ʔwe *(first person singular)* (does not reflect *ŋ) Ll ʔwə·hn^2 *(second person)* Lt vǫ *(second person)* (voi expected).

791 *ʔwi· *at the base of* Tp ʔuɨg^31 Pa ʔwu^31 Ll ʔwi·^2 Y ʔwi Co ʔwi·^12.

792 *ʔwi·ʔ^L *close together* Pa ʔuʔ^2L ʔwi·ʔ^3.

793 *ʔwe·ʔ^L *hard* Oj ʔwaʔ^2 U ʔuaʔ^3 Tl gwáʔ^4 (accent not expected) Ch ʔwaʔ S ʔwaʔ^2 Tp ʔuaʔ^2 Pa ʔuʔ^2 VN ʔweʔ Ll ʔwa·ʔ^3 To ʔweʔ Le ve·ʔ^3 Qi ʔwahʔ^23 Y ʔwaʔ Co ʔwéʔ^12 (long vowel expected).

794 ***ʔwe·ʔŋ^{L}** *strong* **U** ʔụą^{3} **Tl** gwą́ʔ^{4} (accent not expected) **S** ʔwąʔ^{2} **Qe** wąʔ (initial ʔ expected) **Pa** ʔwaʔ^{2} **Ll** ʔwe·ʔn^{3} **Lc** ʔwaʔn **To** ʔwąʔ (Vn expected) **A** ʔwąʔ (Vn expected) **Le** véyʔ^{4} (long vowel expected with tone 3 but no accent). This set is probably related to the preceding one.

795 ***ʔwa** *soft* **Oj** ʔwa^{2} **U** ʔua^{32} **Tl** gwa^{2} **Ch** ʔwa **M** ʔwa **S** ʔwa^{1} **Tp** ʔua^{1} **Pa** ʔwa^{31} **VN** ʔwa **Oz** ʔwa **Ll** ʔwo^{2} **Le** va^{2} **Qi** ʔwo^{3} **Y** ʔwa **Co** ʔwa^{1}.

796 ***ʔwa·** [1] ***ʔwa·ʔ** [2] ***ʔwa·ʔŋ** [3] *become tired* **Oj** e^{2} ka^{3}ʔwo^{3} hna^{3} *(first singular)* [1] e^{2} ka^{3}ʔwoʔ^{3}a^{2} *(third person)* [2] ka^{13}ʔwąʔ^{3} *(second person interrogative)* [3] **U** a^{4}ʔue^{4} *he became tired* [1] a^{4}ʔụąʔ^{4} *you're tired* [3] **Tl** ta^{3}gwą́ʔ^{4} [3] **Ch** ma la ʔwoʔ [2] **S** ka^{3}ʔwo^{32} hna^{12} *I became tired* [1] ka^{3}ʔwoʔ^{32} *he became tired* [2] **Tp** ʔuą^{1} *he became tired* [1] (reflects a short vowel followed by *ŋ) **Pa** ʔóʔ^{32} *(third person)* [2] ʔwaʔ^{32} *(second person)* [3] **VN** ka ʔwo hna *(first singular)* [1] **Ll** ʔwa·ʔn^{23} [3] **Le** ma va *(first singular)* [1] ma vayʔ *(third person)* [3] **Qi** ʔwohʔ^{34} [2]. The [2] reflexes of **Oj, Ch, S** reflect a short vowel.

*ʔl

797 ***ʔlɨ·^{HLH}** *corpse, dead person* **Oj** ʔlɨ^{3} (31 expected) **Tl** lag^{42} (tone 2 expected) **Ch** ʔlag **S** ʔla^{1} **Qe** ʔlaɨ **Tp** ʔlag^{21} **Pa** ʔlay^{1} **VN** ʔlaɨ **Ll** ʔlɨh^{2} **Qi** ʔlɨh^{242} **Co** ʔlɨ·^{12}.

798 ***ʔlɨ·ʔ^{H}** [1] *ugly, evil (inan.)* ***ʔlɨ·ʔŋ^{H}** [2] *ugly, evil (an.)* **Oj** ʔlɨʔ^{31} [1] (tone 1 expected) ca^{3}ʔlɨ̨ʔ^{31} *devil* [2] **U** ʔlagʔ^{32} [1] (all **U** forms seem to reflect a short vowel) ʔląg^{2} [2] a^{5}lą̨ʔ^{32} *shaman* (may reflect a variant with *i in spite of lack of initial ʔ) ta^{2}ląg^{34} *bad one* (may be related, but lack of initial and final ʔ is a problem) **Tl** lą́gʔ^{4} [2] (tone 1 expected) **Ch** ʔlag [1] (both **Ch** forms reflect a syllable without final *ʔ) ca ʔlęg *devil, shaman* [2] **M** ʔlɨʔ [1] **S** ʔlaɨʔ^{3} [1] ca ʔlɨ̨ʔ *devil* [2] **Qe** ca ʔlɨ̨ʔ *devil* [2] **Z** ʔlaɨʔ [1] **Tp** ʔlɨgʔ^{31} [1] (ʔlɨʔ expected) **Pa** ʔlayʔ^{31} [1] (tone 1 expected) ʔląʔ^{1} [2] (seems to reflect *ʔla·ʔŋ and the following form may reflect the corresponding inanimate form *ʔla·ʔ:) za^{2} ʔlaʔ^{1} *devil* **VN** ʔlɨʔ [1] (aɨ expected) **Ll** ʔlɨʔn^{2} [2] **Qi** ʔlɨhʔ^{1} [1] (the **Qi** and **Co** forms reflect a syllable with accent) **Co** ʔlɨ́ʔ^{1} [1] ʔlíʔ^{1} [2] (this form suggests an alternant with *i; cf. the third **U** form).

799 ***ʔlə·ʔ^{LH}** *louse* **Oj** ʔləʔ^{2} **Ch** ʔlagʔ **S** ʔleʔ *pepeyote* **Tp** i^{1}ʔləʔ^{2} **Pa** ʔlɨwʔ^{32} **VN** ʔlaʔ **Oz** ča ʔlɨʔ **Ll** ʔlə·ʔ^{3} **Lc** ʔlaʔn (may be a misrecording of ʔləʔ) **To** ʔləʔ **Qi** hohʔ^{34} ʔləhʔ^{23} (tone 4 expected) **Co** ho·ʔ lə́ʔ^{1} (long vowel with tone 2 expected; expected preconsonantal ʔ may not have been recorded because of final ʔ in preceding word).

800 ***ʔlə·ʔ** *speak* **Oj** ʔləʔ^{1} ʔni^{2} **U** ʔleʔ^{2} **Tl** léʔ^{2} **Ch** ʔlɨʔ (may be a misrecording of ʔlagʔ) **S** ʔleʔ^{32} **Pa** ʔlɨwʔ^{32} **VN** ʔlaʔ **Oz** ʔlɨʔ **Ll** lö^{23} ʔlə·ʔ^{23} *chatter.*

801 ***ʔlə·ʔŋ** *craves meat, good food* **Pa** ʔləʔ^{2} **Ll** ʔləʔn^{2} (reflects a syllable with accent) **Qi** ʔləihʔ^{42}.

802 ***ʔli** [1] ***ʔliŋ** [2] *leap* **Oj** ʔlị^{2} ʔni^{2} [2] **U** ʔlei^{5} *I shoot by slingshot* [1] **S** ʔli^{32} [1] **Pa** ʔlī^{2} [1] ʔle^{32} [2] **Ll** ʔli^{23} [1] **Qi** ʔlih^{24} *shoot arrow, slingshot* [1] (vowel without h expected) **Y** ʔli [1] *arrow.*

803 ***ʔli(ʔ)** *sprinkle, splash* **Ll** ʔliʔ^{23} (**Ll** and **Co** forms do not agree regarding presence of final *ʔ) **Co** ʔlī^{2}. This set may be related to the immediately preceding one.

804 ***ʔla** *make fall* **Tl** lá^{2} **Ll** ʔlo^{32} **Le** la^{32}.

805 ***ʔlaŋ** *bounce* **U** ʔlą^{23} **Tp** ʔlą^{32} **Ll** sɨ^{3}ʔləʔn^{2} (postsyllabic ʔ not expected).

806 ***ʔla·^{L}** *rock, cliff* **U** a^{2}kąu^{2} ʔlo^{3} **Tl** lew^{3} **S** ʔló^{2} (accent not expected) **Tp** ʔlau^{2} **Pa** ʔləw^{2} **Ll** ʔlo·^{3}.

807 ***ʔla·^{L}** *bat* **Tp** i^{1}lau^{2} (preconsonantal ʔ expected) **Ll** ʔlo·^{3} **Lt** la ñi.

808 ***ʔlá·^{L}** [1]~***ʔliá·^{L}** [2] *(become) afternoon* **Oj** tɨ^{4}ka^{3}ʔlo^{3} [1] **U** ta^{5}ʔlo^{4} [1] **Tl** ló^{2} [1] (tone 3 expected) **Ch** ma ka ʔlo [1] **S** ka^{3}ʔló^{23} [1] (accent not expected) **Tp** ka^{2}ʔláu^{2} [1] **Pa** ʔya^{3}ʔléw^{2} *tomorrow afternoon* [2] **VN** tɨ ka ʔlao [1] **Ll** mɨ^{3}ku^{3}ʔlo·h^{3} *in the afternoon* [1] mɨ^{3}rɨ^{3}ʔlä·h^{3} *when it will be afternoon* [2] **Le** ka^{3}lá·^{3} [1] **Qi** ka ʔlo^{34} [1] (tone 3 with oh expected) **Co** ka^{2}ʔló·^{2} [1].

809 ***ʔlá·^{L}** [1]~***ʔliá·^{L}** [2] *get well (inan.)* ***ʔlá·ŋ^{L}** [3]~***ʔlia·ŋ** [4] *get well (an.)* **Tp** ʔliǫ^{2} [4] **Pa** ʔléw^{2} [2] ʔlúw^{2} [3] ʔlyúw^{2} [4] **Ll** ka^{23}ʔlo·h^{3} [1] rɨ^{23}ʔlä·h^{3} [2] ka^{23}ʔla·hn^{3} [3] **Co** (ka) ʔlá·iŋ^{2} [4].

810 ***ʔlá·ŋ^{L}** *much* **Oj** ʔlą^{3} **Tl** lyéw^{3} (reflects a syllable with *ia· rather than *a·ŋ) **Tp** ʔliǫ^{2} (reflects *ia· rather than *a·) **Pa** ʔlúw^{2}.

811 ***ʔla·ʔ^{H}** *cricket* **U** a^{1}ʔlaʔ^{1} (32 expected) **Tl** laʔ^{1} *cockroach* **Ch** haʔ ʔla *cockroach* (final ʔ expected) **S** ʔlaʔ^{21} *cockroach* (tone 3 expected) **Tp** i^{1}ʔlaʔ^{31} **Pa** cyi^{1}ʔlaʔ^{1} **Ll** ʔlo·ʔ^{2}.

812 ***ʔliuʔ** *lick* **Pa** ʔlyuʔ^{32} **Co** ʔlöʔ^{21}.

813 ***ʔlia** [1] ***ʔliaʔ** [2] *push (inan.)* ***ʔliaŋ** [3] ***ʔliaʔŋ** [4] *push (an.)* **Oj** ʔla^{31} ʔni^{2} *(tr. with obj.)* [1] ʔle^{31} ʔni^{2} *(tr. without obj.)* (reflects [1] but with a long vowel) **U** ʔlia [1] ʔlį̣ą [3] **Tl** lá^{2} [1] (reflects *a rather than *ia) **Ch** di ʔlya [1] **M** ʔlya [1] **S** ʔlya [1] **Qe** la lyą [3] (preconsonantal ʔ expected) **Tp** ʔliaʔ^{2} [2] (forms from **Tp**, Pa except [4], **Oz**, **Ll**, and **Le** reflect a

long vowel) ʔliog?^{2} [4] (ịǫ? expected) **Pa** ʔlyi?^{32} [2] ʔlya?^{32} [4] **VN** ʔle [1] ʔlya [3] (ʔlyaŋ expected) **Oz** ʔla? [2] ʔlyą? [4] **Ll** ʔlä·ʔ^{23} [2] ʔle·ʔn^{32} [4] **Le** ga^{3}lya·ʔ^{43} [2] **Qi** ʔla?h^{3} [2] **Y** ʔla?a [2] (probably reflects *a rather than *ia) **Co** ʔlia?r^{2} [2] ʔleŋʔ^{2} [4].

814 ***ʔlia?** *spoil* **Pa** ʔlya?^{32} (reflects a syllable closed by *ŋ) **Co** hmi^{2}-ʔléʔ^{2} (probably reflects a long vowel).

815 ***ʔlia^{L}** *dust* **Oj** ʔle^{2} **U** o^{1}ʔlie^{3} **Tl** lyew^{3} **Ch** ʔlyo **M** ʔle **S** ʔlyó^{2} (accent not expected) **Qe** ʔlyu **Tp** ʔliog^{2} **Pa** ʔlew^{2} **VN** hwɨ ʔlo **Oz** wa ʔlö **Ll** ʔlä·^{3} **Le** lya·^{3} **Qi** ʔlah^{23} **Co** ʔle·^{2}. The following set is probably related: *ʔlia *dirty* **Y** ʔle **Co** ʔlia^{1}.

816 ***ʔlia·ŋ** *add on, lengthen* **Pa** ʔlyów^{32} **Ll** ʔlä·n^{3} **Le** lye·y^{3}.

817 ***ʔliá^{L}** *soldier* **Oj** ʔle^{3} **U** a^{2}ʔlie^{4} **Tl** lyú^{3} (lyo expected) **Ch** ʔlyo **S** ʔlyó^{23} (accent not expected) **Qe** ʔlyu **Tp** zɨ^{2}ʔliog^{2} **Pa** ʔléw^{2} **Oz** ʔlö **Ll** za^{3} ʔlä·h^{3} **Qi** ʔlah^{43} (tone 3 expected) **Y** ʔla *war* **Co** ʔlé·^{2}.

818 ***ʔlia·ʔŋ** *trim, dress* **Pa** ʔlyáwʔ^{32} **Le** lya·ʔ^{32} (reflects a syllable without final *ŋ) **Co** ʔleŋʔ^{21} (reflects a syllable with accent).

*ʔy

819 ***ʔyɨ^{HLH}** [1] ***ʔyí^{H}** [2] *hammock* **Oj** sɨ^{1}ʔyi^{1} [2] **U** a^{2}ʔd^{y}ei^{23} [2] **Tl** gí^{1} [2] **Ch** yi [2] (it is possible that the **Ch** forms reflecting *ʔyi should be written with g rather than y, which would then be like the **Ch** reflex of *y) **S** ʔe^{1} [2] (12 expected) **Qe** ʔi [2] **Tp** cɨ^{1}ge^{31} [2] (tone 1 with accent expected) **Pa** ʔyiw^{31} [2] (tone 1 with accent expected) **VN** ʔi [2] **Oz** sa ʔe [2] **Ll** ʔih^{2} [2] **Le** ʔi [2] **Qi** ʔɨh^{242} [1] **Co** ʔɨ·^{12} [1]. The second reconstruction in this set and the next could be labeled *ʔyɨ, but none of the reflexes suggests *ɨ whereas with *hyɨ some of the **Tl** and **S** languages have reflexes which reflect *ɨ in contrast to *i.

820 ***ʔyɨ·ʔ** [1] ***ʔyi·ʔ** [2] *shamed, shy* **Oj** e^{2} ʔyiʔ^{31}a^{2} [2] **U** ʔd^{y}eiʔ^{1} [2] **Tl** gi^{42} [2] (final ʔ expected) **Ch** yiʔ [2] **S** ʔeʔ^{3} [2] **Qe** ʔyaiʔ [2] **Tp** giʔ^{31} [2] **Pa** ʔyiwʔ^{1} [2] **Ll** ʔi·ʔ^{23} [2] **Qi** ʔɨhʔ^{34} [1].

821 ***ʔyíʔ^{LH}** *nose* **Oj** či^{1}ʔyiʔ^{3}a^{2} (tone 4 expected; this form reflects a syllable without accent) **U** ta^{3}ʔd^{y}eiʔ^{43} **Tl** giʔ^{4} **Ch** yiʔ **S** ta^{2}ʔeʔ^{23} **Qe** ʔyeiʔ **Tp** rə^{2}gíʔ^{32} **Pa** ʔyeyʔ^{32} **VN** ta ʔiʔ **Oz** ta ʔiʔ **Ll** ʔiʔ^{2} **Le** ʔíʔ^{2} **Qi** ta^{3}ʔiʔ^{3} **Tm** ka ʔiʔ **Co** ta^{2}ʔiʔ^{1} (tone 2 expected).

822 ***ʔyɨ^{L}** *heavy* **Oj** ʔyi^{2} **U** ʔd^{y}ei^{3} **Tl** gi **Ch** yi **M** ʔyei **Tp** gei^{2} **Pa** ʔyiw^{2}

VN ʔi Oz mi ʔi Ll ʔi^{3} Le ʔi Qi ʔih^{34} (23 expected) Co ʔi$^{\cdot 2}$.

823 ***ʔya^LH** *pot* Oj na^{1}ʔya^{2} U a^{2}-ʔd^{y}a^{3} *clay griddle* Tl gyą (nasalization not expected) Ch ʔya S ʔya^{3} (32 expected) Z ʔya *clay griddle* Tp ni^{1}ʔia^{2} *clay griddle* (32 expected) Pa na^{1}ʔyi^{32} *clay griddle* VN ʔya Oz wa ʔya Ll mi^{31}ʔya^{3} Lc ya ta (ʔ lost in pretonic position) Pe ʔye To mi ʔye RC mi ʔya A mi ʔye Le ya^{3} Qi ʔya^{4} *clay griddle.*

824 ***ʔya** *sprout* U ʔd^{y}a^{23} Tl gyá^{4} Tp ʔia^{2} Pa ʔyi^{2} Ll ʔya^{3} Co ka ʔyá^{12}. Cf. *ʔyaŋ *produce, finish.*

825 ***ʔya** *prick* Ll ʔya Co ʔyar.

826 ***ʔyaŋ** *produce, finish* U a^{4}-ʔd^{y}ą^{3} *he climbed (stairs)* Tp ʔió^{21} *(intransitive inanimate)* (reflects *CVʔ) Ll ʔyen^{23} Lc mi ʔyan To mi ʔyan A za ʔyan. This set may be related to *ʔya *sprout.*

827 ***ʔyá^H** *adze* Qi ʔya^{1} Co ʔyá^{1}.

828 ***ʔyá^L** *fence* U a^{2}ʔa^{4} (ʔd^{y} expected) Qe ʔa (ʔy expected) Ll ʔyah^{3} Pe ʔye To ʔye A ʔye Qi ʔya^{24} Co ʔyá^{12}.

829 ***ʔyaʔ^LH** *broom* Oj si^{1}ʔye^{3} U a^{2}ʔd^{y}ieʔ^{3} Tl gyoʔ^{4} Ch ʔma ci ʔyoʔ S ʔyoʔ^{32} Qe ʔyuʔ Tp ci^{1}ʔiáʔ^{32} (reflects a long vowel) Pa ʔyoʔ^{32} VN ʔyeʔ (reflects a long vowel) Oz sa ʔyaʔ Ll ʔyoʔ^{2} To ʔyeʔ RC ʔyaʔ A ʔyeʔ Le yaʔ^{2} Ql ñi^{3}ʔyaʔ^{4} Co ŋi^{1}ʔyaʔ^{2}. Cf. *ʔya·ʔ *sweep.* The following forms are probably related to this set: *ʔyaʔ *tax collector* Ll ʔyoʔ^{2} To ʔyeʔ A ʔyeʔ.

830 ***ʔyaʔ** *Mexico City* Ll go^{23}-ʔyoʔ^{2} Lc go ʔyaʔ Pe go ʔyeʔ RC go ʔyaʔ Le gaʔ yaʔ.

831 ***ʔyaʔ** [1] *pretty (inan.)* ***ʔyaʔŋ** [2] *(an.)* Oj li^{1}ʔyeʔ^{2} [1] li^{1}ʔyąʔ^{3} [2] Tl gyoʔ^{4} [1] Ch li ʔyoʔ [1] M ʔyo [1] (probably a misrecording of ʔyoʔ) S ʔyoʔ [1] Tp ʔioʔ^{2} [1] Pa li^{1}ʔyoʔ^{31} [1] VN ʔyaʔ [1] Oz ʔya ma [1] (reflects *CV) Qi ʔyaʔ^{3} [1] ʔyeiʔ [2] Co ʔyaʔ^{2} [1].

832 ***ʔya^H** *hen, female* U a^{1}ʔd^{y}ie^{23} (reflects a syllable with accent) Tl gyo^{4} Tp ʔio^{31} *woman* (21 expected) Pa cyeʔ^{1} ʔyéw^{1} *female chicken* (reflects a syllable with accent) Oz cyaʔ ʔya Ll tu^{3} ʔyo$^{\cdot 2}$ *turkey before she lays eggs* To tu ʔye *small female turkey* Co ʔye$^{\cdot 12}$ (1 expected). The following forms appear to be related: *ʔya· *cow* Oj kwa^{1}hwi^{2} ʔye^{31} Ch ku hwi ʔyo S kwa hwi ʔyo Qe kwa hwi ʔyu Ll kwa^{2}ʔyo·ʔ^{3} (the Ll through Le forms reflect a final *ʔ) Lc kwa ʔyaʔ To kwa ʔyeʔ RC kwa ʔyaʔ A kwe ʔyeʔ Le kwi yaʔ Qi hohʔ^{34} ʔyiah^{23}.

833 ***ʔya^H** *grandmother* Oj si^{1}-ʔye^{31}a^{2} U si^{2}ʔd^{y}ie^{32} Tl ti^{3}gyo^{12} Ch di ʔyo S ti ʔyo Qe me di ʔyu Tp ci^{1}ʔio^{31} (21 expected) Pa ci^{1}ʔyó^{2} (tone 1 without accent expected) Oz ma ʔya Ll ši^{2}ʔyo$^{\cdot 2}$ Lc ši ʔya Pe ši ʔye To ši ʔye RC ši ʔya Le ša ya Qi si^{3}ʔyiah$^{2\text{-}12}$.

834 ***ʔya·H** *oak* **U** a^{2}ʔma^{3} ʔdʸie^{32} **Tl** mi^{2}gyo^{12} **Ch** ʔma mi ʔyo **S** ʔma mi ʔyo **Tp** ʔma^{2} ʔiog^{31} (21 expected) **Pa** ʔma^{2} ʔyéw^{1} (reflects a syllable with accent) **Oz** ʔma ʔya **Ll** ʔmo^{3} ʔyo·^{3} (tone 2 expected) **Lc** ʔma ʔya **Pe** ʔmo ʔye **To** ʔmo ʔye **RC** ʔmo ʔya **A** ʔmo ʔye **Le** kwi ya.

835 ***ʔya·L** *sunshine* **Oj** ʔye^{2} **U** ʔdʸie^{3} **Tl** gyu^{3} **Ch** ʔyu **M** ʔye **S** ʔyu^{2} **Qe** ʔyu **Z** ʔyu **Tp** ʔiog^{2} **Pa** ʔyew^{2} **VN** ʔyu **Oz** wu ʔyo **Ll** ʔyo·^{3} **Pe** ʔye **To** ʔye **RC** ʔya **A** ʔye **Le** ya·^{3} **Qi** ʔyiah^{23} **Y** ʔye *a day* **Co** ʔye·^{2}.

836 ***ʔya·** *Lacova, a Chinantec village* **Ll** i^{2}ʔyo·^{3} **Lc** ñi ʔya **Pe** i ʔye **To** ñi ʔye **A** i ʔye **Le** ñi ya.

837 ***ʔya·** *deep* **S** ʔyo **Pa** ʔyew^{1}.

838 ***ʔyá·H** [1] ***ʔya·L** [2] *custard apple (anona)* **Oj** hmi^{1}ʔye^{2} [2] **U** ṵ^{4}di^{2}ʔdʸie^{3} [2] **Tl** mi^{2}gyú^{1} [1] **Ch** mi ʔyu **S** mi ʔyu **Qe** mi ʔyu **Tp** míg^{2} i^{1}ʔiog^{2} [2] **Pa** mi^{1}ʔyew^{2} [2] **Ll** ʔyo^{2}kwo·ʔ^{3} [1] (accent not possible in pretonic syllable) **Pe** mɨ ʔye **Le** mɨ ya **Qi** ʔyiah^{1} [1] **Co** ʔyé·^{1} [1].

839 ***ʔyá·H** *Chiltepec, a Chinantec village* **U** ʔdʸie^{23} **Tl** gyú^{1} **Ch** ʔyu **S** ʔyu^{12} **Tp** ʔióg^{1} **Pa** ʔyéw^{1} **Qi** ʔyiah^{1} **Co** ʔyé·^{1} *Jacatepec, a different Chinantec village.* This set may be related to the [1] forms of the preceding set.

840 ***ʔyá·LH** [1] ***ya·** [2] *day after tomorrow* **Oj** ʔye^{2} [1] **U** dʸie^{4} [2] **Tl** gyó^{3} [2 ʔ] **Ch** yo [2] **S** yo^{2} [2] **Qe** yu [2] **Z** gyo [2] **Tp** ʔióg^{3} kąu^{2} [1] (32 expected) **Pa** ʔyéw^{3} [1] (32 expected) **VN** ʔyu [1] **Oz** ʔyu [1] **Ll** (ʔa·h^{23}) ʔyo·h^{2} [1] **Pe** ʔye [1] **To** ʔyo [1] (e expected) **A** ʔa ʔye [1] **Le** ya **Qi** ʔyia^{43} [1] (Vh expected) **Co** ʔyé·^{21} [1]. The Usila to Zapotitlán forms may simply have lost all initial glottal stops rather than have developed from a form without an initial glottal stop since the consonantal reflexes do not fit *y.

841 ***ʔya·ʔLH** *jaguar* **Oj** ʔyaʔ^{2} **U** a^{2}ʔdʸaʔ^{3} lịǫ^{23} *lion* **Tl** gyaʔ^{4} **Ch** ʔyaʔ **M** ʔyaʔ **S** ʔyaʔ^{32} **Qe** ʔyaʔ **Tp** zɨ^{2}ʔiaʔ^{2} **Pa** ʔyiʔ^{32} lí^{1} **VN** ʔyeʔ li **Oz** ʔyaʔ ñiʔ *cat that attacks pigs* **Ll** ʔyo·ʔ^{3} **Lc** ʔyaʔ **Pe** ʔyeʔ **To** ʔyeʔ **RC** ʔyaʔ **A** ʔyeʔ **Le** yaʔ^{3} **Qi** ʔyiahʔ^{4} ti^{2} **Co** ʔyé·ʔ^{12} (tone 2 but no accent expected).

842 ***ʔya·ʔLH** *masonry* **Oj** na^{1}ʔyaʔ^{2} **Tl** gyaʔ^{4} **S** ʔyaʔ **Qe** ʔyaʔ **Tp** nɨ^{1}ʔiaʔ^{2} **Pa** ʔyiʔ^{32} **Oz** (ʔne) ʔyaʔ **Ll** ʔyo·ʔ^{3} **To** ʔyeʔ **RC** ʔyaʔ **A** ʔyeʔ **Le** yaʔ **Y** ʔyeʔ.

843 ***ʔya·ʔ** *sweep* **Oj** ʔyaʔ^{3} ʔni^{2} **U** ʔdʸaʔ^{3} **Tl** gyáʔ^{2} **Ch** ʔyaʔ **S** kwa^{1}ʔyaʔ^{32} **Qe** kwa ʔyaʔ **Tp** ʔiáʔ^{2} **Pa** ʔyíʔ^{2} **Ll** ʔyo·ʔ^{32} **Lc** ʔyaʔ **Pe** ʔyeʔ **To** ʔyeʔ **A** ʔyeʔ **Le** yaʔ **Qi** yaʔh (ʔy expected). This set may be related to *ʔyaʔLH *broom.*

*hg

844 ***hga·ʔ**^{L} [1] ***hŋa·ʔ**^{L} [2] ***hwa·ʔ**^{L} [3] *rot* **U** hua?^{3} [3] **Tp** hua?^{2} [3] **Oz** mɨhŋa? [2] **Ll** ka^{23}-hŋo·?^{3} [2] **Qi** hgoh?^{34} [1] **Co** hgó·?^{12} [1].

845 ***hga·ʔŋ** [1] ***hŋa·ŋ** [2] *baptize* (alternant of *sa·ŋ) **Tp** ka^{2}hŋó^{2}za^{2} hmɨg^{2} [2] **Pa** hŋó^{2} [2] **Ll** hŋa·n^{3} [2] **Le** ma^{43}hŋa·y^{34} [2] **Co** hga·iŋ?^{21} [1].

*hm

846 ***hmɨ**^{L} *blood* **Oj** hmɨ^{2} yi^{3} **U** hu^{3} d^{y}ei^{4} **Tl** hmeg^{3} **M** hmɨ **S** hmɨ́^{2} (accent not expected) **Tp** hmɨ^{2} **Pa** hmɨ^{2} **VN** hmɨ **Oz** wa hma **Ll** hmɨ^{3} **Le** hmɨ^{3} **Qi** hmɨ^{4} (the **Qi** and **Co** forms reflect *^{LH} rather than *^{L}) **Co** hmɨ^{2}.

847 ***hmɨ**^{LH} *louse* **U** a^{1}hu^{3} **Tl** hmeg^{4} (accent expected) **M** hmɨ **S** hmɨ^{32} **VN** hmɨ **Ll** hmɨ^{3} **Le** hmɨ^{3}.

848 ***hmɨ́**^{HL} *river area* **Tp** hma^{3} (ɨ expected) **Pa** hmɨw^{3} *river* **Ll** ji^{2}hmɨ́h^{1} (< 23) **Le** šo hmɨ **Co** hmɨ?^{2} (? not expected).

849 ***hmɨ́**^{LH} *rain* **Oj** hmɨ^{3} **U** o^{1}hu^{43} **Tl** hmég^{3} **M** hmɨ hu **S** hmɨ^{23} **Tp** hmɨ́^{32} **Pa** hmɨ́w^{32} **VN** hmɨ **Oz** hma **Ll** hmɨh^{2} **Le** hmɨ **Qi** hmɨ^{3} ti^{34} **Co** hmɨ́·^{21} (long vowel not expected).

850 ***hmɨ?** *broth* **Oj** hmɨ?^{1} **U** o^{1}hu?^{43} **Tl** hmag?^{1} **S** hma? **Tp** hmɨ?^{31} **Pa** hmɨw?^{31} **VN** hmai? **Ll** hmɨ·?^{31} (short vowel expected) **Lt** hmɨ? *juice* **Qi** hmɨ?^{1} **Co** hmɨ́?^{1}. The tones of the **Oj, Tl, Tp, Qi,** and **Co** forms reflect *^{H} but suggest a long vowel rather than the short vowel indicated by the vowel qualities of the forms.

851 ***hmɨ́?**^{LH} *tomato* **Oj** mɨ^{3}hmɨ?^{4} **U** u^{4}hu?^{43} **Tl** hmag^{4} (accent and final ? expected) **Ch** hmag? **S** hma? **Tp** mɨ^{2}hmɨ́?^{32} **Pa** hmɨw?^{32} **VN** hmai? **Oz** mɨ hmɨ? **Ll** mɨ^{2}hmɨ?^{1} (< 2) **Lt** mɨ hmɨ? **Qi** hmɨ?^{3} **Co** hmɨ?^{2}.

852 ***hmɨ·**^{L} *water* **Oj** hmɨ^{2} **U** o^{1}hu^{3} **Tl** hmag^{3} **M** hma **S** hmai^{2} **Tp** hmɨg^{2} **Pa** hmɨy^{2} **VN** hmai **Oz** wa hmɨ **Ll** hmɨ·^{3} **Le** hmɨ·^{3} **Qi** hmɨh^{23} **Co** hmɨ·^{2}. The following forms, which mean *name,* apparently belong to the same set: **U** hu^{3} i^{4}sai^{3} **Tl** hmag^{3} **S** hmai^{2} **Pa** hmay^{1} (matches the **Pa** form of the following set) **VN** hmai za **Ll** hmɨ^{3}ñi^{3} *surname* (reduced reflex due to pretonic position.)

853 ***hmɨ́·**^{HLH} [1] *day* ***hmɨ·**^{HL} [2] *by day* **Oj** hmɨ^{31} [1] **U** hu^{2} [1] **Tl** hmag^{2} [1] **M** hma [1] **S** hmai^{1} [1] **Tp** hmɨg^{21} [1] **Pa** hmay^{1} [1] ?i^{2}hmɨ^{2} [2] (ɨy expected) **VN** hmai [1] **Oz** hmɨ [1] **Ll** hmɨ·h^{2} [1] hmɨ·^{23} [2] **Lt** hmɨ [1] **Qi** hmɨh^{242} [1] **Co** hmɨ́·^{12} [1] (accent not expected).

854 ***hmɨ·ŋ^L** *melt, dissolve* **Pa** hmə́^{2} **Ll** hmɨhn^{3} **Co** hmɨ́·^{2} (does not reflect final *ŋ).

855 ***hmɨ·ʔ^H** [1] *urine* ***hmɨ·ʔ^HL** [2] *urinate* **U** ɥ^{3}hɥʔ^{2} [1] hɥʔ^{3} [2] **Tl** hmag^{3} hmégʔ^{2}tseg^{3} [2] (reflects accented syllable) **Tp** hmɨ^{1} hmɨ́ʔ^{1} za^{2} [1] **Pa** hmɨ^{1} hmɨ́ʔ^{1} [1] hmɨ́ʔ^{32} [2] (accent not expected) **VN** hmaɨ hmaɨʔ [1] **Ll** mɨ^{23}hmɨʔ^{2} [1] hmɨ·ʔ^{23} [2] **Qi** hmɨhʔ^{1} [1] **Co** hmɨ́ʔ^{1} [1].

The reflexes of *ɨ (ʔ) after *hm in **U**, **Tl**, **Ch**, and **S** are believed to be backed since no nonbacked reflexes are attested. However, it is possible that the backed syllabics really reflect forms with *ɨ̞ rather than *ɨ.

856 ***hmɨ^H** *skunk* **Oj** hmɨ^{1} **U** a^{2}hɥ^{2} **Tl** hmeg^{2} **S** hmɨ^{21} (1 expected) **Pa** hme^{1} **VN** hmɨ (e expected) **Ll** hmɨ^{2} **Qi** hmɨ^{2} **Co** hmɨ^{1}. The following forms, which mean *onion*, apparently belong to the same set: *hmɨ^H [1] or ^L [2] *hmɨ́^L [3] *onion* **Oj** yɨ^{1} hmɨ^{1} kaʔ^{1} [1] **U** ɥ^{4}dʸa^{1} hɥ^{2} [1] **Tp** sɨ^{1}hme^{2} [2] **Pa** cɨ^{1}hme^{2} hạʔ^{32} [2] **VN** ɨ hmɨ hạọʔ (e expected) **Oz** yu hme **Ll** mɨ^{31}ɨ^{3}hmɨ^{3} ko·ʔ^{2} [2] **Lt** hɨ hmɨ **Qi** ɥ hmɨ^{24} [3] **Co** hɨ^{2}hmɨ́^{12} [3].

857 ***hmɨ·^L** *father* **Oj** hmɨ^{2}a^{2} **U** hmaɨ^{3} (u expected) hɥ^{3}cie^{3} *priest* **Tl** hmay^{3} **Ch** hmey **M** hmaɨ **S** hméɨ^{2} (accent not expected) **Qe** hmaɨ **Tp** hmeɨ^{2} **Pa** tɨ^{1}hmiw^{2} **VN** hmeɨ **Ll** hmɨ·^{3} **Le** hmɨ·^{3} **Qi** hmɨh^{34} (23 expected).

858 ***hmɨ·^H** *braids* **Oj** hmɨ^{1} čɨ^{1}a^{2} **U** a^{2}hɥ^{23} **Tl** hmáy^{1} **Ch** hmey **S** hmeɨ^{12} **Qe** hmaɨ **Tp** hméɨ^{1} **Pa** hméy^{1} **VN** hmɨ za hmeiŋ (ŋ not expected) **Ll** hmɨ·h^{2} **Le** hmɨ·^{1} **Qi** hmɨh^{1} tʸɨ^{2} **Co** hmɨ·^{1}.

859 ***hmɨ·^LH** *Chinantec language* **Oj** hu^{1} hmɨ^{2} **U** hau^{23}hɥ^{43} **Tl** haw^{2} hmáy^{4} **Ch** hu hmey **M** hau hmeɨ **S** hu^{2}hma^{2} (ei expected) **Qe** hu hmaɨ **Tp** hág^{1} hmeɨ^{32} **Pa** hə́w^{1} hmey^{32} **VN** hau hmeɨ **Oz** hu hmɨ **Ll** hu^{23}hmɨ·^{232} (2h expected; the following form may be a better match) za^{3} hmɨ·^{32} *Chinantec people* **Pe** wa hmɨ **To** ku hmɨ **RC** hwa hmɨ **Le** faʔ hmɨ **Qi** hmɨh^{43} **Co** hmɨ·^{21}.

860 ***hmê^L** [1] *tasty (inan.)* ***hmeŋ** [2] *tasty (an.)* **Oj** hma^{4} [1] (reflects *^HL; 3 expected) **U** hmá^{4} [1] **Tl** hmá^{3} [1] **S** hma [1] **Tp** hmá^{2} [1] **Pa** hmá^{2} [1] hmów^{32} [2] **Ll** hmeh^{23} [1] (reflects *^HL; 3 expected) hmen [2] **Lt** hme [1] **Qi** hma^{24} [1] **Co** hmia^{12} [1] (accent expected).

861 ***hme·^LH** *make, do* **Oj** hmo^{31} ʔni^{2} *do it!* a^{4}hmo^{2} ʔni^{2} *don't do it!* (this form provides the matching tone) **U** hɥẹ^{3} **Tl** hmó^{4} **S** hmo (probably hmu) **Pa** hmo^{32} **VN** hmie (e is the expected reflex) **Oz** hmei (i is probably the third person marker) **Ll** hme·^{23} (3 expected) **Le** hme **Qi** hmah^{1} (4 expected) **Y** hme **Co** hmo·r^{2}.

862 ***hme·ʔ** *mistreat, bother* **U** hɥẹʔ^{1} **Tp** hmógʔ^{2} **Pa** ku^{2}hmáʔ^{2} **Ll**

hme?^{23}. **Tp, Pa,** and **Ll** indicate an accent.

863 ***hme·ʔ** *repair* **U** hụẹʔ^{2} **Tl** hméwʔ^{2} **Tp** hmógʔ^{32} **Pa** hmowʔ^{32} **Ll** hme·ʔn^{32} **Co** hmoʔr^{2}. **U, Tl, Tp,** and **Co** indicate an accent. **Pa** and **Ll** reflect a final *ŋ. This set may be related to *hme·^{LH} *make.*

864 ***hma^{H}** *sowing* **Pa** hmo^{32} hma^{1} **Ll** hmo^{2} **Qi** hmo^{2}.

865 ***hmaʔŋ** *I hold (an. obj.)* **U** hmaʔ **Tp** hmáʔ^{21} **Pa** hmaʔ^{31} **Ll** hməʔn^{32}na^{23} **Y** hmaʔa *I held* **Co** hmaʔ^{2}a *(inan. obj.).*

866 ***hmáʔŋ^{LH}** *pure, nothing but* **U** hmaʔ^{3} **Tl** hmaʔ^{4} (accent expected) **Tp** hmáʔ^{32} **Ll** hməʔn^{2} **Qi** hmaiʔ^{34} (4 expected).

867 ***hma·^{L}** *petate, woven mat* **Oj** sɨ^{1}hmo^{2} **U** a^{2}hụẹ^{3} **Tl** hmew^{3} **Ch** hmo **M** hmo **S** hmú^{2} (accent not expected) **Qe** hmo **Tp** tsɨ^{1}hmu^{2} **Pa** hmuw^{2} **VN** hmo **Oz** sa hmo **Ll** hmo·^{3} **Le** hma·^{3} **Qi** hmoh^{23} **Co** hmo·^{2}.

868 ***hmá·^{L}** [1] ***hmá·^{H}** [2] *king, royal* **U** a^{2}ta^{3}hụẹ^{4} *curassow* [1] **Tl** tą́^{4} hméw^{3} *peacock* [1] **S** mi^{3}hmu^{23} *bishop* tą^{3}hmu^{23} *curassow* [1] **Qe** tą hmo *curassow* **Tp** i^{2}hmú^{2} *archbishop* tą^{32} hmú^{2} *curassow* [1] **Pa** tą^{32} hmó^{2} *curassow* [1] ŋiʔ^{3} hmó^{1} *archbishop* [2] **Ll** hmo·h^{3} [1] hmo·h^{2} *bird of paradise* [2] **Le** tą hma *crested guan* **Ql** to^{4}hmoh^{3} *curassow* [1] **Co** ta hmó·^{2} *curassow* [1].

869 ***hmá·** *root* **U** o^{1}hụẹ^{43} **Tl** hmó^{4} **S** hmu^{2} **Tp** hmú^{21} **Pa** hą$^{?32}$ hmo^{31} **VN** hmoa **Oz** hmo ma **Ll** hmoh^{2} (long vowel expected) **Lt** hma **Qi** hmoh^{1} **Co** hmó^{1} (long vowel expected). **U, Tl, S,** and **Ll** reflect *^{LH}.

870 ***hmá·ʔ^{H}** *balsa (tree)* **U** a^{2}ʔma^{3} hmaʔ^{32} (reflects syllable without accent) **Pa** ʔma^{2} hmáʔ^{1} **Ll** ʔmo^{3} hmoʔ^{2}.

*hn

871 ***hnɨ** *carry load by load* **S** ca hnɨ **Pa** hnɨ́w^{2} **Ll** hnɨ^{32}.

872 ***hnɨ^{LH}** [1] ***hnɨ·** [2]~***hnɨ^{LH}** [3] ***hnɨ·^{HLH}** [4] *close* **Oj** hni^{31} ʔni^{2} [4] **U** si^{2}hneg^{1} *it is closed* [1] hnai^{1} *close it!* [4] **Ch** hnag *close it!* [2] **S** hnɨ [1] **Tp** cɨ^{1}hnɨ́^{1} *fence* [1] (32 without accent expected) **Pa** hnɨw^{32} [1] hnɨ́y^{32} [4] hne^{32} *to fence* [3] **VN** hnei [4] **Ll** rɨ^{3}hnɨ^{3} *closed* [1] mɨ^{3}hnɨ^{3} *he closed it* [3] **Lt** hni [3] or [4] **Qi** hnɨh^{4} [2] **Co** hnɨr^{2} [1].

873 ***hnɨ^{H}** *knee* **Oj** či^{1}hni^{2}a^{2} (1 expected) **U** ku^{2}hnei^{32} (2 expected) **Tl** mo^{34} ụ hní^{2} (accent not expected) **M** kụ hnyu (i expected) **S** ku^{1}hnyi^{1} **Tp** mɨ^{2}hne^{21} **Pa** hne^{1} **VN** mɨhne **Oz** sahnen **Ll** hñi^{2} **Le** luhñi **Qi** moh^{4} hni^{2} **Co** mo^{2}hni^{1}.

874 ***hni^{LH}** *sow* **U** hnei^{3} **Tl** hní^{4} **S** hnyi **Tp** hne^{32} **Pa** hne^{32} **Ll** hñi^{3} **Co** hnir^{2}. Cf. *hŋi *sow.*

875 ***hni(·)** *hinder* **Tp** hné^{2} **Pa** hne^{32} **Ll** ka^{23}hni·n^{23} **Co** hni·iŋ (The **Tp** and **Pa** forms reflect a short vowel. The **Ll** and **Co** forms reflect a long vowel. The vowel i is expected in the **Co** form.)

876 ***hní·^{LH}** *cloud* **Oj** hni^{2} **U** o^{1}hnai^{43} **Tl** hnáy^{4} **Ch** hney **M** hnai **S** hné^{2} (accent not expected) **Qe** hnai **Tp** hnei^{32} **Pa** hnew^{32} (ey expected) **VN** hnei **Oz** ʔwa hni **Ll** hni·h^{2} **Le** hñí·^{2} **Qi** hnih^{43} **Co** hní·^{21}.

877 ***hna·^{L}** *that (over there)* **Oj** hna^{2} (reflects a short vowel) **U** a^{3}hno^{3} **Tl** hnó^{2} (tone 3 but no accent expected) **Pa** hnuw^{2}.

878 ***hna·** [1] ***hna·ʔ** [2] *slap* **U** ma^{4}hno^{3} [1] **S** hnoʔ *you slap* [1] (ʔ is marker of second person) **Tp** hnáu^{32} [1] **Pa** hnáw^{32} [1] hnáʔ^{32} [2] **Ll** ka^{23}hno·h^{3} [1] ka^{23}hnoʔ^{23} [2] **Y** hno *he pats* [1] hna *pat!* [1] (probably reflects a short vowel) **Co** hnó·r^{21} [1].

879 ***hniu·^{L}** *beans* **Oj** mɨ^{3}hñi^{2} **U** ʉ^{4}hnai^{3} **Tl** hnay^{3} **Ch** hney **S** hnyei^{2} **Qe** hnyai **Tp** mɨ^{2}hnei^{2} **Pa** hnew^{2} **VN** hnui **Oz** mɨhni (ö expected) **Ll** mɨ^{31}hño·^{3} **Le** mɨhñu **Qi** hnüh^{23} **Co** mɨ^{2}hnő·^{1} (tone 2 but no accent expected).

880 ***hniu·^{HLH}** *heartwood* **S** hnye^{1} ʔma^{2} (ei expected) **Tp** hnei^{21} **Pa** hnew^{1} ʔma^{2} **Ll** hñö·ʔ^{232} ʔmo^{3} (ʔ not expected). The following set seems to be related to the above: *hniu·^{HLH} *kidneys* **U** ʉ^{4}hnei^{32} (tone reflects *CV·ʔ, but vowel reflects a short vowel) **S** hnye^{1} (vowel reflects *CV·ʔ) **Tp** mɨ^{2}hnei^{31}za^{2} (tone reflects *CV·ʔ) **Ll** mɨ^{31}hñöh^{1} *(physical) heart* (vowel reflects *CV́, but the **Ll** form cited above fits *CV·ʔ exactly) **Co** mɨ^{2}hnő·^{1} *heart* (tone reflects *^{H}).

881 ***hnia^{H}** [1] ***hnia·^{H}** [2] ***hnia·ʔ^{H}** [3] *we* **Oj** hnaʔ^{1} [1] **U** hnia^{1} *(inclusive)* [1] hnie^{32} *(exclusive)* [2] **Tl** hnaʔ^{1} [3] (ny expected) **Ch** hnya *(exclusive)* [1] hnaʔ *(inclusive)* [3] **M** hnyaʔ [3] **S** hnoʔ^{1} [3] (tone 1 expected; the entire form may reflect a short syllable) **Tp** hniog^{21} *(inclusive)* [2] hniaʔ^{31} *(exclusive)* [3] **Pa** hnyaw^{1} *(inclusive)* [2] hnyiʔ^{1} *(exclusive)* [3] **VN** hnoaʔ [3] **Oz** hneʔ [3] **Ll** hne^{2} *(inclusive)* [1] hne·ʔ^{31} *(exclusive)* [3] (tone 2 expected) **Lt** hña [1] **Qi** hnahʔ^{42} [3] **Y** hnaʔ *(inclusive)* [3] **Co** hnéʔ^{1} [3] (reflects a syllable with accent). The **Oj, Tl, S,** and **VN** forms may reflect *ą rather than *ią.

882 ***hniá^{H}** [1] ***hniá^{L}** [2] *I* **Oj** hna^{3} [2] **U** hnia^{4} [2] **Tl** hna^{12} [1] (ny expected and probably tone 1 with an accent) **Ch** hna (ny expected) **M** hnya **S** hna^{12} [1] **Tp** hniá^{2} [2] **Pa** hní^{2} [2] **VN** hna **Oz** hne **Ll** hneh^{2} [1] **Le** hña **Qi** hna^{2} [1] (the **Qi** and **Co** forms reflect a syllable without accent) **Co** hnia^{1}

[1]. The **Oj, Tl, S,** and **VN** forms may reflect *ą rather than *ią.

883 ***hniá**^{L} [1] *visible, clear (inan.)* ***hniaŋ** [2] ***hnia·ŋ** [3] *(an.)* **Oj** hna^{2} [1] (tone 3 expected) **U** hnia^{4} [1] **Tl** hnyá^{3} [1] **Ch** hnya [1] **M** hnya [1] **S** hna^{23} [1] **Tp** hniá^{2} [1] **Pa** hní^{2} [1] hnya^{2} [2] hnyo^{1} [3] **VN** hne [1] hnyaŋ [2] **Ll** hneh^{3} [1] hnehn^{3} [2] hne·n^{23} [3] **Ll** hña [1] **Qi** hneih^{3} [3] **Tm** hna [1]. The **Oj** and **S** forms may reflect *ą rather than *ią.

*hŋ

884 ***hŋɨʔŋ** [1] ***hŋaʔŋ** [2] *kill* **Oj** hɨ̨ʔ^{1} ʔni^{2} [1] (hŋ expected) **U** hŋaʔ^{2} [2] **Tl** hŋégʔ^{2} [1] **M** hŋɨʔ [1] **S** ka^{3}hŋɨʔ^{3} [1] **Tp** hŋagʔ^{3} *(sg. object)* [1] **Pa** hŋóʔ^{32} *(tr.)* [1] hŋɨ̨yʔ^{32} *(in.,* may reflect a syllable without final *ŋ) **VN** hŋɨʔ [1] **Oz** hŋɨ [1] (final ʔ expected) **Ll** hŋɨʔn^{23} [1] **Le** mahɨ̨yʔ [1] (hŋ expected) **Qi** hŋaiʔ^{42} [2] **Co** hŋaiŋʔ^{21} [2].

885 ***hŋɨ́·**^{L} [1] ***hŋɨ** [2] ~ ***hŋɨ́·**^{L} [3] *become clean, clear* **Ch** makahnyug [3] (i expected) **S** makahnyiʔ [3] (ʔ not expected) **Tp** hŋɨ^{2} *it is clean* [2] **Pa** hŋɨ́y^{2} *(pres.* and *past)* [1] hŋɨ^{2} *(prog.)* [2] hŋyíw^{2} *(fut.)* [3] **Ll** ka^{23}hŋɨ·hn^{3} *(past)* [1] rɨ^{23}hñi·hn^{3} *(fut.)* [3] (both forms reflect a syllable with final *ŋ) **Le** ná^{4}hŋɨ́^{1} *clean* [2] **Co** hgɨ·^{2} [1] hd^{y}i·^{2} *rinse* [3] (tone 3 expected in both forms; the **Co** forms alone reflect an oral vowel, the first *hgɨ·, the second perhaps *hgi·.

886 ***hŋɨ**^{L} *vein* **Oj** hñi^{2}teʔ^{31} ʔə^{1}a^{2} **U** hñi^{3} **Tl** hŋi(2) (3 expected) **Ch** hnyi **S** hnyi^{2} **Qe** hnyi **Tp** nɨ^{1}hŋi^{2} **Pa** hŋyu (i expected) **Ll** hñi^{3} **Le** hñi^{3} **Qi** hñi^{34} **Co** hŋi^{12}.

887 ***hŋi** [1] *sow (nonfirst person)* ***hą** [2] *sow (first person singular)* **Oj** hñi^{3} ʔni^{2} [1] **U** si^{5}hñi^{3} *he's going to transplant* [1] **M** hnyei [1] **S** hą [2] **Pa** hŋyu^{2} *we sow* [1] (i expected) hą^{32} [2] **VN** makahŋyi [1] **Oz** hñe [1] **Ll** hǫn^{23} [2] **Qi** hñi^{2} [1]. This set is related in some unusual way to *hni *sow,* and some of the forms listed there could equally well be listed in this set as reflecting form [1].

888 ***hŋiʔ** *rubber* **U** ụ^{4}si^{1}hñiʔ^{5} **Pa** cyi^{2}hŋyíʔ^{1}.

889 ***hŋa·** *(a)rose, went up* (alternant of *sa·) **Tp** ka^{2}hŋáu^{2} **Pa** hŋǿw^{2} **Ll** hŋo·h^{2}.

890 ***hŋa·(ʔ)** *choked* (alternant of *sa(ʔ)) **Pa** hŋó^{2} **Ll** ka^{23}hŋoʔ^{23} **Co** hyéʔr^{12} (reflects *hy).

891 ***hŋiu**^{L} *hair* **Oj** hñi^{2} **U** o^{1}hñi^{3} **Tl** hŋi^{3} **Ch** hnyu **M** hnyu **S** hnyu^{2} **Qe** hnyi **Tp** nɨ^{1}hŋi^{2} **Pa** ŋyí^{1} cyi^{2} hŋyu^{2} *scissors* **VN** hŋyu **Oz** wahñu **Ll** hñö^{3} **Le** hñu^{3} **Ql** hñü^{34} **Y** hnü *my hair* (hŋ expected) **Co** hŋiö^{12}.

892 ***hŋiu** *rub* **Oj** hñi^{31} ʔni^{2} *sharpen (imp.)* **U** hñei (reflects

long vowel) **Tl** hŋi **Ch** hnya *grind* (ṵ expected) **S** hnyu **Pa** hŋyú^{2} *grind* hŋyéw^{32} *sharpen* (reflects syllable with long vowel) **Ll** hñö^{32} **Qi** hnüh^{212} *sharpen* (hñ expected; reflects syllable with long vowel) **Co** hŋiör^{2} *drag.*

893 ***hŋiú·L** [1] *six (inan.)* ***hŋiú·ŋL** [2] *six (an.)* **Oj** hñi^{3} [1] and [2] **U** hñei^{4} [1] **Tl** hŋí^{3} [1] **Ch** hnyi [1] **M** hnei [1] (hny expected) **S** hnyei^{23} [1] **Qe** hnyai [1] **Tp** hŋéi^{2} [1] hŋyéw^{2} [1] hŋyó^{2} [2] **VN** hŋyu [1] hŋyuŋ [2] **Oz** hñi [1] **Ll** hñö·h^{3} [1] hñu·hn^{3} [2] **Le** hñu [1] **Qi** hñü^{3} [1] (Vh expected; tone 3 does reflect a long vowel) hñui^{2} [2] (Vh expected; tone 3 expected) **Y** hŋü [1] **Co** hŋiú·^{2} [1] (ö· expected; may be an animate form).

894 ***hŋia** [1] *wait (intr.)* ***hŋiaŋ** [2] *wait (tr., an. obj., nonfirst sing.)* ***hąŋ** [3] *wait (tr., an. obj., first sing.)* **Oj** hña^{31} [1] **U** hña^{23} [1] **Tl** hŋyá^{2} [1] **Ch** hnya [1] **S** hǫna [3] (reflects a syllable with long vowel) **Tp** ka^{2}hŋia^{3} [1] hŋiog^{32} [2] (reflects a syllable with long vowel) **Pa** hŋyí^{32} [1] hŋya^{32} [2] hą^{31} [3] (may reflect a *hą stem for *first sing. intr.*) **VN** hŋya [1] **Ll** hę^{23} [1] hęn^{32} [2] hǫhn^{32}na^{23} [3] **Lc** hąn [2] **A** hǫnna [3] **Le** ga^{3}hę́·^{2} [1] (reflects a syllable with long vowel) hęy^{32} [2] **Y** hę [1] **Co** hą^{2} [1] sihe·iŋ^{1} [2] (short nasalized vowel expected).

895 ***hŋiáHL** [1] *eight (inan.)* ***hŋláŋHL** [2] *eight (an.)* **Oj** hña^{4} [1] and [2] **U** hña^{34} [1] **Tl** hŋyá^{2} [1] **Ch** hnya [1] **M** hnya [1] **S** hnya^{3} [1] (23 expected) **Tp** hŋia^{3} [1] **Pa** hŋyi^{3} [1] hŋyaw^{3} [2] (reflects syllable with long vowel but not final *ŋ) **VN** hŋye [1] hŋyaŋ [2] **Oz** hña [1] and [2] **Ll** hñeh^{23} [1] hñehn^{23} [2] **Lc** hñe [1] hñan [2] **Le** hña [1] **Qi** hña^{3} [1] (tone fits syllable with long vowel) hñei^{2} [2] (34 expected) **Co** hŋia^{3} [1] (tone 2 with accent expected).

896 ***hŋiaʔŋ** [1] *remove oneself (intr.)* ***hŋia·ʔŋ** [2] *remove (tr.)* **Pa** hŋyáʔ^{2}, hŋyóʔ^{31} [1] (both of these forms are intr.; the second reflects a syllable without final *ŋ) hŋyóʔ^{32} *(an.)* hŋyíʔ^{2} *(inan.)* [2] (the second form reflects a syllable without final *ŋ) **Oz** hñuʔn [1] **Ll** hęʔn^{23} [1] hę·ʔn^{32} [2] **Le** hęyʔ^{32} [1] **Co** hęʔr^{2} [1] (reflects a syllable without final *ŋ).

897 ***hŋia·** [1] *bless (inan.)* ***hŋia·ŋ** [2] *bless (an.)* **Tp** hŋio^{32} *holy* hme^{2}hŋió^{3} *bless* [1] or [2] **Pa** hŋyáw^{3} *blessed* [1] mi^{2}hŋyó^{3} *bless* [2] **VN** hǫ [1] (may reflect *hą·) **Oz** hę [1] (reflects short vowel) **Ll** hę·h^{2} [1] mi^{3}hę·hn^{2} [2] **Lc** hę [1] **Pe** hą [1] **A** hę [1].

898 ***hŋiá·HLH** [1] ***hą́·HLH** [2] *porcupine* **U** a^{5}hię^{2} [1] **Tl** hęw^{2} [2] **Ch** hą [2] (may reflect a short vowel) **S** hǫ [2] **Tp** i^{1}hŋio^{1} [1] *skunk* **Pa** hŋyaw^{1} [1] **Oz** čahǫ̈ [1] **Ll** hę·h^{2} [1] **Lc** hę [1] **To** hę [1] **A** hę [1] **Lt** hąkuči (if cognate, this term probably reflects form [2]).

The nasal seems to have been lost regularly in *hŋia in **Ll** through **Co**, as demonstrated in several sets. There are, however, at least two remaining problems: (a) the nasal is preserved everywhere in the set meaning *eight*, perhaps because of its high frequency as a numeral, and (b) two of the sets require the positing of a *hą variant because of forms without nasals in languages in which the nasal is not regularly lost.

*hw

899 **hwɨ**^{H} *dust* **Oj** hwɨ^{1} **U** o^{1}heu^{2} **Tl** hweg^{2} **M** ma hu? (final ? of **M**, **Oz**, and **Le** forms not expected) **S** hwɨ **Tp** huɨ^{1} *ground coffee, sugar, flour, etc.* **Pa** hwu^{1} **VN** hwɨ **Oz** hu? **Ll** hwɨ^{2} **Le** fɨ? ñi *salt* **Qi** fu^{2} **Co** hwɨ^{1}.

900 ***hwɨ**^{LH} [1] ***hwɨ́**^{LH} [2] ***hwɨŋ** [3] *row, layer* **U** heu^{23} [1] or [2] (3 expected if [1]; 43 if [2]) **Tl** hwę́g^{2} [3] **S** hwó^{2} [2] (accent not expected) **Qe** hwɨ [1] **Tp** huɨ́^{3} [3] **Pa** hwu^{32} *put on top* [1] hwé^{3} *layer* [3] **Ll** hwɨ·h^{2} [2] ǰi^{23}hwɨn^{31} *stories (of a house)* [3] **Lt** fɨ [1] or [2] **Qi** fuh^{43} [2] **Co** hwɨ^{2} [1].

901 ***hwɨ** *cow* **Oj** kwa^{1} hwɨ^{2} ?ye?^{31} **U** a^{1}si^{2} kua^{32} heu^{23} **Tl** ka^{2}hwég^{1} **Ch** kuhweg ?yo **S** kwa hwɨ ?yo **Qe** kwa hwɨ ?yu **Tp** i^{1}ka^{1}huɨ^{32} **Pa** ka^{1}hwu^{2}.

902 ***hwɨ́?**^{L} [1] ***hwɨ?**^{HL} [2] *raw* **Oj** hwɨ?^{4} [2] **U** heu?^{4} [1] **Tl** hwég?^{3} [1] (accent not expected) **S** hwɨ? [1] or [2] **Tp** huɨ́g?^{3} [2] **Pa** hwɨ́?^{3} *(inan.)* [2 ?] hwé?^{3} *(an.)* (reflects *hwɨ?ŋ or perhaps *hwi?ŋ) **Ll** rɨ^{3}hwɨ?^{23} [2] **A** la hwɨ? [1] or [2] **Le** na fɨ? [1] or [2] **Co** hwɨ·?^{12} [1 ?] (long vowel not expected).

903 ***hwɨ·**^{H} [1] ***hwɨ·?**^{H} [2] *a little* **U** ka^{3}heu?^{2} [2] **Ch** ka hu [1] **M** ka hu [1] **S** ka hwǫ? [2] (nasalization not expected) **Tp** ka^{2}huɨg^{21} [1] **Pa** ka^{2}hwu?^{1} [2] **Ll** ka^{3}hwɨ^{2} [1] (long vowel expected) **Qi** xuh^{1} gɨ^{1} *less* [1] (f rather than x expected).

904 ***hwɨ·**^{L} *town* **Oj** he^{31} hwɨ^{2} **U** he^{1}heu^{3} **Tl** i^{2}hew^{1} (3 expected) **Ch** hu **S** hwú^{2} (accent not expected) **Qe** hu **Tp** huɨg^{2} **Pa** hwɨy^{2} **VN** ha hu **Oz** hwɨ **Ll** hwɨ·^{3} **Le** fɨ·^{3} **Qi** fuh^{23} **Co** hwɨ·^{2}.

905 ***hwɨ·**^{HL} *tell (first person singular and second person forms)* **Oj** hwɨ^{2} *(first person singular)* **U** ni^{1}heu^{34} hnia^{4} *(first person singular future)* **Tl** hew^{4} *(second person subject and first person singular object)* **Tp** huɨ́g^{2} hniá^{2} *(first person singular)* (accent not expected) huɨg?^{2} *(second person)* (the vowels of the second person forms of **Tp**, **Pa**, and **Ll** reflect an open syllable as well as or better than a syllable closed by *?, but the tone of the **Pa** form reflects a closed syllable) **Pa** hway?^{32} *(second person)* **Ll** hwɨ·?n^{32} *(second person)* **Y** fɨ *(first person singular)*.

906 ***hwɨ·** *poor, wretched* **Oj** hwɨ^{23} ca^{2} **U** heu^{23} **Tl** héw^{2} **Ch** hu **S** hwo^{23} wa co **Qe** hu **Tp** huíg^{2} **Pa** hwíy^{2} **VN** hu **Ll** hwɨ·^{32} **Lt** za fɨy (reflects final *ŋ) **Qi** fuh^{2}.

907 ***hwɨ·^{HL}** *sky* **Oj** ñi^{4} hwɨ^{4} **U** ñi^{4}heu^{5} (5 as well as 34 may reflect *^{HL} in an accented syllable) **Tl** ŋi^{3}héw^{3} (2 expected) **Ch** nyi hu **Qe** ʔnyi hu kwu **Tp** i^{2}huíg^{3} (accent in **Tp** and **Pa** forms not expected) **Pa** ŋyí^{3} hwíy^{3} (ay expected) **VN** ŋyi hu **Co** ŋi^{2} hwɨ́^{12} (tone suggests a long unaccented syllable). The following forms, which mean *hell,* probably belong to the same set: **Oj** kye hwɨ **U** ki^{4}heu^{5} (note comments regarding the preceding **U, Tl, Tp,** and **Pa** forms) **Tl** ki^{3}héw^{3} **Ch** ki hu **S** kyu^{3}hwu^{2} (o expected; tone reflects an unaccented syllable) **Qe** kyu hu **Tp** gi^{3}huíg^{3} (mostly an oath) **Pa** gyo^{3}hwíy^{3} **VN** gya hu **Ll** gya·h^{23} hwɨ·h^{2} (23 expected) **A** gi hwɨ **Le** ǰa fɨ.

908 ***hwɨ́·ŋ^{LH}** *many (an.)* **Oj** hwɨ^{2} **U** hęu^{43} **Tl** hwęg^{34} (**Tl** and **S** forms reflect an unaccented syllable) **S** hwú^{32} (accent not expected) **Qe** hǫ **Tp** huɨ^{32} **Pa** hway^{32} **VN** hwɨŋ **Ll** hwɨ·hn^{2} and ^{23} (tone of the second form not expected) **Le** sa fɨy **Qi** fuih^{2} (43 expected) **Co** hwɨ́·ŋ^{21}.

909 ***hwɨ·ʔ^{L}** *cockroach* **S** ci wɨʔ (hw expected) **Tp** mɨ^{1}huɨʔ^{2} **Pa** háʔ^{2} mu^{1}hwuʔ^{2} **Oz** tą hwɨʔ **Ll** hwɨ·ʔ^{3} **Lt** fɨʔ **Co** mɨ^{2}hwɨ́ʔ^{12} (reflects accented syllable).

910 ***hwɨ·ʔ^{LH}** [1] ***hwɨʔŋ** [2] *lazy* **Oj** lo^{31}hwɨʔ^{4} [1] **U** heuʔ^{43} [1] hęuʔ^{3} [2] **Tl** hwęgʔ^{3} [2] **Ch** huʔ [1] hwɨʔ [2] (ęg expected) **S** hwɨʔ^{3} co^{2} [2] **Qe** huʔ [1] **Tp** huɨʔ^{32} [2] **Pa** hwuʔ^{32} [1] hweʔ^{32} [2] **Ll** hwɨ·ʔ^{3} [1] (reflects unaccented syllable) hwɨʔn^{23} [2] **Le** kwe^{3}fɨ·ʔ^{2} [1] (accent probably expected) fɨyʔ^{4} [2] **Qi** fuiʔ^{2} ca^{3} [2] **Co** hwɨʔ^{2} [1] hwɨiŋʔ^{2} [2].

911 ***hwə** (length uncertain) *buzzard* **U** a^{1}teu^{3} hue^{5} **Tl** tu^{3} hwé^{2} **M** tuʔ hwɨ **S** tu^{2}hwe^{32} **Z** tu fe.

912 ***hwə́ʔ^{LH}** [1] ***hwə·ʔ** [2] ***hwəʔŋ^{HL}** [3] *fear, frighten, holy* **U** hueʔ^{43} *fear* [1] hęęʔ^{3} [3] **Tl** ka^{34}-hwęʔ^{2}tseg^{3} *he was frightened* [3] (reflects accented syllable) **Ch** ka hwę [3] (final ʔ expected) **S** hwęʔ co [3] **Qe** ka hwąʔ [3] **Tp** huɨʔ^{2} *(intr.)* [3] huɨʔ^{2} *(tr.)* [3] **Pa** hwɨʔ^{32} *doctrine* [2] hwáʔ^{2} *(intr.)* [3] (accent not expected) **Ll** hwəʔ^{2} *fright* [1] hu·h^{2} hwəʔ^{3} *sacred words* [2] (long vowel expected) hwə·ʔn^{23} *(intr.)* [3] **Qi** foʔ^{3} *fear* [1] hmɨh^{23} fohʔ^{2} *holy water* [2] **Co** hwəʔ^{2} *fear* [1] hwə́iŋʔ^{12} *(intr.)* [3] hwə́·iŋʔ^{21} *(tr.)* [3] (the first of the last two forms fits the reconstruction [3] better, but the second agrees with the last **Ll** form in reflecting a long vowel).

913 ***hwɨ^{LH}** *path, way* **Oj** hwɨ^{2} **U** heu^{3} **Tl** hwég^{4} **Ch** hu hweg **M** hu **S** hwɨ^{32} **Z** fɨ **Tp** huɨ^{32} **Pa** hwu^{32} **VN** zi hwɨ (i expected) **Oz** hwe **Ll** hwɨ^{31} (3 expected) **Le** fɨ^{1} (3 expected) **Qi**

fu^{4} (i expected) **Co** hwɨ^{2} (i expected).

914 ***hwi** [1] ***hwiŋ** [2] *split* **Tp** huɨ^{32} [1] ku^{21} huɨ^{31} *loose change* [2] **Pa** gụ?^{32} hwu^{32} *bifurcation* [1] hwe^{32} *(intr.)* [2] **Oz** hwɨ [1] (e expected) **Ll** hwin^{32} [2] ku^{2}hwin^{23} *loose change* [2] **Le** ku fi *loose change* [1] **Co** hwí·ŋ^{2} *shave, chop fine* [2] (length not expected). This set may be related to *hwi·ŋ *break.*

915 ***hwi** [1] ***hwi·** [2] *whistle* **Oj** a^{4}hwɨ^{2} ?ni^{2} *(neg. imper.)* [1] or [2] **U** heu^{3} [1] or [2] **Tl** hwég^{2} [1] **S** hwo^{2}co [2] **Qe** kwa hwɨ [1] **Tp** huɨg^{32} za^{2} [2] **Pa** hwu^{32} [1] **Oz** hö [2] **Ll** hwi·^{23} [2] **Le** fi [1] or [2] **Qi** fih^{4} [2] **Co** hwi·r^{1} [2].

916 ***hwí**^{H} *horn of an animal* **Oj** či^{1} hwɨ^{1} **U** ma^{3}heu^{23} **Tl** hwég^{1}tseg^{3} **M** hu ha? **S** hwɨ^{12} **Tp** mɨ^{2}huɨ^{1} **Pa** mu^{2}hwú^{1} **VN** mo hwi **Oz** na hö (**Oz** and **Ll** forms reflect a long vowel) **Ll** hwi·h^{2} **Qi** fi^{1} **Co** mo^{2}hwí^{1}.

917 ***hwɨ·**^{H} *owner, lord, patron* **Oj** hwɨ^{3}na^{2}ri^{1} *God* (31 expected) **U** heu^{32} **Tl** héw^{1}tseg^{3} (**Tl** and **S** forms reflect an accented syllable) **Ch** ca hu **S** hwo^{12} **Tp** huɨg^{31} (21 or 1 expected) **Pa** hwu^{1} (reflects a short vowel) **VN** hwi **Oz** hö **Ll** hwi·^{2} **Lt** fi **Qi** fih?^{242} *image* (**Qi** and **Co** forms reflect *^{HLH}) **Y** fi **Co** hwi·^{12}.

918 ***hwɨ·**^{L} [1]~***hwɨ·**^{L} [2] *ripe, ripen* **Oj** hwɨ^{2} **U** heu^{3} **Tl** ma^{3}hew^{3} **Ch** ma hu **S** ma^{2}hwu^{2} **Qe** ma hu **Tp** huɨg^{2} **Pa** ma^{2}hwɨy^{2} **VN** ma hu [2] **Ll** rɨ^{23}hwi·^{3} *(fut.)* [1] rɨ^{3}hwɨ·^{3} *(stative)* [2] **Le** na fɨ [2] **Qi** huh^{23} *carbuncle* [2] (f rather than h expected) **Y** fi *(fut.)* [1] **Co** hwɨ·^{2} [2].

919 ***hwi·ŋ**^{LH} *break* **Oj** hwɨ^{31} ?ni^{2} *(imper.)* (2 expected if imperative) **U** li^{4}hẹụ^{3} *can break* **Ch** ka hwẹg **S** hwụ^{32} **Tp** huɨ^{32} za^{2} **Co** hwí·ŋ^{12} (2 expected). This set may be related to *hwi(ŋ) *split.*

920 ***hwi·ŋ**^{HL} *tough (an.)* **Pa** hwẹ^{2} **Ll** hwɨ·n^{23}. This set and the following one with uniformly nasalized vowels but oral labials present counter-evidence to the theory that voiced stops were phonetically nasals before nasalized vowels. Cf. sec. 3.1 of the Introduction.

921 ***hwí·**^{LH} *chew* **Tl** hwụ́^{3} (4 expected) **Tp** huɨ́g^{32} za^{2} (accent not expected) **Pa** hwɨy^{32} **Oz** hộ **Ll** hwɨ·^{32} **Qi** fɨh^{212} (source of 212 is not known) **Co** hwɨ́·r^{21}.

922 ***hwi·?**^{HL} *rust, sap, milk* **U** heu?^{2} *rust* (3 expected) **Tl** héw?^{4} *rust* (accent not expected) **S** hwu? *sap* **Tp** huí?^{32} *rust, sap* (2 expected) **Pa** hwu?^{32} *rust* **VN** hwi? *sap* **Oz** ?wa hö? *milk* **Ll** hwi·?^{23} *rust, sap, milk* **Le** fi·?^{4} *sap* **Qi** fi?^{3} *milk* (reflects short accented syllable) **Co** hwí·?^{12} *rust* hwí?^{12} *sap, milk* (reflects accented syllable).

923 ***hwe**^{L} *throw* **Oj** hwa^{3} ?ni^{2} hmɨ^{2} *sprinkle (imper.)* (2 expected in indic.) **Ch** hwa ?nu **Oz** hwa **Ll** hwa^{3} **Qi** fa^{34} ca^{3}.

924 ***hwéŋ^{L}** *fan oneself* **U** a^{2}dʸi^{4}-hụẹ^{3} (reflects an unaccented syllable) **Tp** huą^{2} Juan zí^{2} *John is fanning himself* **Ll** hwen **Y** feʔe *(second person)* **Co** hwiár^{12} (the **Co** form and perhaps the **Y** form do not reflect a final *ŋ).

925 ***hwe·ʔ^{LH}** [1] ***hwə·ʔ^{LH}** [2] *big (inan.)* ***hwə·ʔŋ^{LH}** [3] *big (an.)* **Oj** hwoʔ^{2} [2] hwi̧ʔ^{2} [3] **U** hueʔ^{3} [2] **Tl** hweʔ^{4} [2] **M** hwaʔ [1] **S** hweʔ^{32} [2] **Tp** ma^{2}hui̧ʔ^{2} za^{2} *he is grown up* [3] **Pa** hwɨʔ^{32} [2] hwaʔ^{32} [3] **VN** hweʔ [1] **Oz** höʔ [1] **Ll** hwe·ʔ^{3} [1] (a· expected) **Lt** mɨ feʔ *river* [1] **Qi** fehʔ^{4} [1] (ah expected) **Co** hweʔ^{2} [1].

926 ***hwé·ʔ^{L}** [1] *say* ~ ***hwáʔ** [2] *(first person singular)* ~ ***hwa·ʔ^{L}** [3] *(second person)* **Oj** hwaʔ^{1} ʔni^{2} *(imper.)* [1] (3 expected in indic.) **U** huaʔ^{4} [1] **Tl** hwáʔ^{2} [1] (3 expected) **S** hwaʔ co [1] **Tp** huáʔ^{2} za^{2} [1] **Pa** hwɨʔ^{2} [1] huaʔ [2] **VN** hwaʔ [2] **Oz** hwaʔ *(third person)* [2] **Ll** hwaʔ^{3} [1] hwəʔn^{23} [2] hwo·ʔ^{3}raʔ^{3} [3] **To** hweʔ [1] **Le** faʔ [1] **Qi** fahʔ [1] foʔh^{2} [2] **Y** faʔa *(second person past)* [1] **Co** hwé·ʔr^{12} [1] (reflects a syllable without accent) hwaʔ^{2}a [2] hwó·ʔ^{12} [3]. Cf. *hwá·ʔ^{LH} *speech.*

927 ***hwa^{L}** *ash* **Oj** hwa^{2} **U** o^{1}hua^{3} **Tl** hwa^{3} **S** hwa^{2} **Tp** ti^{1}huá^{3} (2 without accent expected) **Pa** hwu^{2} **VN** hwa **Oz** u hwa **Ll** hwo^{3} **Le** fa^{3} **Qi** fo^{34} **Y** fa **Co** hwá^{12} (accent not expected).

928 ***hwáʔ^{LH}** [1] ***hwáʔŋ^{LH}** [2] ***hmáʔ^{LH}** [3] ***hmáʔŋ^{LH}** [4] *fish (first person singular)* **S** hwoʔ^{2} *(third person)* [1] (tone reflects a long vowel) **Tp** hmáʔ^{32} [4] **Pa** hmaʔ^{32} [4] **Ll** hwə·ʔn^{32}na^{23} [2] (short vowel expected) **Co** hmaʔ^{2}a [3].

929 ***hwa·^{H}** *trout* **U** họ^{4}hue^{32} **Tl** hwó^{1} (reflects accented syllable) **Qe** hu **Tp** i^{1}hu^{1} *trout, generic word for fish* **Pa** how^{1} **VN** hwaʔ (ʔ not expected) **Ll** hwo·^{2} **Le** fa **Qi** foh^{2} **Co** hwo·^{1}.

930 ***hwa·ʔ^{L}** *pus, rotten* **Oj** hwaʔ^{2} **U** huaʔ^{3} **Tl** hwaʔ^{4} **S** hwaʔ^{2} **Qe** ʔa hwaʔ **Z** faʔ **Tp** huaʔ^{2} **Pa** hwuʔ^{2} **VN** hwaʔ **Ll** hwo·ʔ^{3} **Qi** fohʔ^{23} **Co** hwó·ʔ^{12}.

931 ***hwá·ʔ^{LH}** *speech* **Tp** huáʔ^{32} *doctrine* **Ll** hwo·ʔ^{2} (32 probably expected) **Lt** faʔ **Qi** tɨ^{4}fohʔ^{3} *school teacher.* This set may be related to *hwé·ʔ^{L} ~ *hwáʔ ~ *hwa·ʔ^{L} *say.*

*hl

932 ***hlɨ^{L}** *hoe* **U** a^{2}ñi^{23} hleg^{3} ta^{5}kọ^{34} **Tp** ŋí^{1} hlə^{2} **Pa** ŋyí^{1} hlɨw^{2} *shovel* **VN** ŋyi hlɨ ʔlyeʔ **Ll** ñih^{2} hlɨ^{3} **Le** hle ñi *shovel* (may not be cognate).

933 ***hlɨ** *bench* **Tl** hleg^{1} **Tp** ni^{1}hlə^{32} **Pa** hlɨw^{31} **Ll** hlɨ^{2} **Le** hlɨ^{2} **Co** hlɨ^{21} (reflects a long vowel).

934 ***hlɨ** [1] *cover (inan.)* ***hlɨŋ** [2] *cover (an.)* **Oj** hlɨ^{3} ʔni^{2} [1] hlɨ̨^{31} ʔni^{2}

[2] U hleg^{4} [1] Tl hlég^{2} [1] hlęg [2] S hlɨ [1] Tp hlə́^{2} [1] Pa hlɨ́w^{2} [1] hlą́^{2} [2] Ll hlɨ^{32} [1] ku^{2}hlɨ́n^{1} [2] Le hlɨ^{32} [1] Qi hlɨh^{24} (reflects a long vowel) Co hlɨ́^{2} [1] hlɨ·iŋ^{12} [2] (both Co forms reflect a long vowel).

935 ***hlɨ** *split (intr.)* Tp ma^{2}hlə́^{2} Pa hlɨ́w^{2} Qi hlɨʔh (the Qi and Co forms reflect a syllable with final *ʔ) Co hlɨʔr^{2}.

936 ***hlɨ́^{L}** *comb* Oj ho^{1}hlɨ^{3} U a^{2}-hleg^{4} Tl hlég^{3} S hlɨ^{23} Tp nɨ^{1}hlə́^{2} Pa hlɨ́w^{2} VN hlɨ Ll hlɨh^{3} Le hlɨ Qi hlɨ^{24} Co hlɨ́^{12}. This set may be related to the one immediately preceding.

937 ***hlɨʔ** [1] ***hliʔ** [2] ***hliʔŋ** [3] *wet* Oj hlɨʔ^{1} *wet* [1] li hlɨʔ *get wet* (reflects *hlɨʔŋ) U hlegʔ^{1} [1] (ag expected; the U, Tl, and Ch forms probably reflect a long vowel) Tl hlegʔ^{1} [1] Ch hlegʔ [1] M hlɨʔ [1] S hlɨʔ [1] Tp hleʔ^{2} [3] (nasalized vowel expected) Pa hlíʔ^{2} *rot* [2] hleʔ^{31} [3] VN gwi ti hlɨʔ [1] (aɨ expected) Ll hli·ʔ^{23} [2] (short vowel expected) hliʔn^{32} [3] Le hlíʔ^{4} [2] Co hlíʔ^{2} *thicken water by sprinkling corn dough* [2].

938 ***hlɨ·^{L}** *egg* Oj mɨ^{3}hlɨ^{2} U ṵ^{4}hlag^{3} Tl ma hlag^{3} Ch hlag S hlaɨ^{2} Qe hlaɨ Tp mɨ^{2}hlag^{2} Pa hlɨy^{2} VN hlaɨ Oz mɨ hlɨ Ll mɨ^{31}hlɨ·^{3}.

939 ***hlɨ·^{L}** *lemon* Oj wɨ^{2}hlɨ^{2} U ṵ^{4}ṵ^{3}-hlag^{3} Tl mag^{3} ŋi^{2} hlag^{3} Ch ŋi hlag.

940 ***hlɨ·^{HLH}** *knife* S mi hla Qi ñi^{1} hlɨh^{242} Co ŋí^{1} hlɨ·^{12}.

941 ***hlə·ʔ^{H}** *measles* Oj hləʔ^{1} Ch hle (vowel reflects a vowel closed by *ʔ even though ʔ is not present) S hleʔ^{1} (tone 3 expected) Tp zo^{21} hləʔ^{31} Pa zaw^{1} hlɨwʔ^{1} Ll zo·h^{2} hlɨ^{3} *malaria* (hlə·ʔ^{2} expected; may not be cognate) Qi hlɨhʔ^{24} (hləhʔ^{42} expected) Co hlə·ʔ^{21}.

942 ***hlɨ·** *La Alicia, a Chinantec village* Oz gu hli Ll ku^{23}hlɨ·^{232} RC gwa hli.

943 ***hle·** [1] *tremble (inan.)* ***hle·ŋ** [2] *tremble (an.)* U hlę^{23} [2] Tp hlę^{32} [2] Pa hlya^{32} [2] (a rather than ya expected) Ll hle·^{23} [1] hle·n^{23} [2] Le hle·y^{4} [2] Co hlé·^{12} [1] hlé·iŋ^{12} [2].

944 ***hla^{H}** *broad* Tp hlé^{2} (hla^{1} expected; may not be cognate) Pa hla^{1} Ll hlo^{2} Y hla *big around* Co hla^{1}.

945 ***hlaŋ** *enlarge* Ll hlən^{32} Le bi^{3}hláy^{3} Co hmɨ^{2}hla^{21} (final ŋ expected). This set may be related to *hla^{H} *broad.*

946 ***hlaʔ** *timid, stupid* Ll za^{3} hloʔ^{3} *timid* Le za hlaʔ *stupid.*

947 ***hliu^{LH}** [1] *crooked (inan.)* ***hliuŋ** [2] ***hluʔŋ** [3] *crooked (an.)* Oj hli^{2} [1] U hlei^{3} [1] Tl hlyú^{4} [1] hlyę́w^{4} [2] Ch hlyu [1] S hlyu^{32} [1] Qe hli [1] Tp hlə^{32} [1] (i expected) Pa hlyu^{32} [1] hlúʔ^{1} [3] VN hlɨ [1] (hlyu expected; seems to match Tp in reflecting *ɨ) Oz hlö [1] Ll hlö^{3} [1] hlön^{32} *to bow, curve* [2] hluʔn^{31}

[3] **Le** na^{3}hlyu^{3} [1] hlyuy^{32} *to bow* [2] **Qi** hlui?^{42} [3] **Co** hlú·^{21} (may reflect [3]; if so, hluŋ? expected).

948 ***hlia?ŋ** *loosen* **Pa** hlyá?^{2} **Qi** hla?h^{3} (reflects a syllable without final *ŋ) **Co** hléŋ?^{2}.

*hy

949 ***hyɨ^{L}** *fire, light* **Oj** yi^{2} **U** o^{1}hd^{y}i^{3} **Tl** seg^{3} **Ch** seg **M** sɨ **S** si^{2} **Tp** si^{2} **Pa** si^{2} **VN** hi **Oz** wahi **Ll** hi^{3} **Le** ši^{3} **Qi** hɨ^{34} **Co** hɨ^{12}.

950 ***hyɨ·?ŋ** *brilliant* **Oj** yi?^{31} **Pa** si?^{32} **Ll** rɨ^{3}hi·?n^{31} **Qi** hɨh?^{4} **Co** hɨ·?^{12} (the **Qi** and **Co** forms do not reflect a final *ŋ). The following forms with the same meaning may be related but seem to reflect *sɨ(ŋ): **S** maθi **Lt** ǰi? sɨ. This entire set is probably related to the one immediately preceding.

951 ***hyi^{L}** *paper* **Oj** mo^{31}yi^{2} **U** ma^{2}-hd^{y}i^{3} **Tl** si^{3} **S** mu^{1}si^{2} **Tp** si^{2} **Pa** si^{2} **VN** mohi **Oz** muhe **Ll** hi^{3} **Le** ši^{3} **Qi** hi^{34} **Co** ?ma hi^{12}.

952 ***hyi·^{HLH}** *tuber, like sweet potato and yuca* **Oj** na^{1}yi^{2}ro^{3} *sweet potato* (31 expected) **U** o^{1}hd^{y}ei^{1} ro^{4} *sweet potato* **Tl** say^{42} **Ch** ši ro *sweet potato* **S** sye^{1} **Qe** sai **Tp** sei^{21} **Pa** sey^{1} rə́w^{1} *sweet potato* **VN** hi o *sweet potato* **Oz** mɨhi *yuca* **Ll** i^{2}ro·h^{3} *sweet potato* (232 and a long vowel expected if in a stressed syllable) **Pe** ñi ?nɨ **To** mɨñi ?mo *yuca* **A** hi ro *sweet potato* **Le** ši^{42} *yuca* (long vowel expected) **Qi** hih^{242} **Co** hi·^{12}.

953 ***hyi·ŋ^{LH}** *bathe (another)* **Oj** yi^{2} **Tl** sę́g^{4} **Ch** si **S** kwasi **Qe** syei **Tp** sę^{32} **Pa** se^{32} **Ll** hi·n^{3} **A** he **Le** ga^{3}ši·n^{32} (3 expected).

954 ***hyu·?** *squat on one's haunches* **Pa** ?i^{2} syu?^{3} **Ll** rɨ^{3}hyu·?n^{32} (reflects a syllable with final *ŋ) **Le** he^{2} bi^{4}hyu·?^{3} **Co** sɨ hyö·?r^{21}.

955 ***hyu·?** *fall (plural subject)* **U** hd^{y}i?^{2} **Tp** ci^{2}séi?^{2} **Pa** syú?^{2} **Ll** ka^{23}-hyö?^{2} (**Ll** and **Co** forms reflect a short vowel) **Le** ga^{3}hyu·?^{32} **Qi** xüh?^{34} **Co** hyö?^{2} hñö^{12} *fur is shedding.*

956 ***hyá^{LH}** *cliff* **Qi** xa^{3} **Y** xa **Co** hyá·^{21} (short vowel expected). It is possible that some of the sets labeled *hya... should be labeled *hye... in the light of the following variant reflexes: (a) **Ll** hya·? and hyo·?, (b) **To** hye? and hyö?, (c) **Qi** xa and xia, and (d) **Co** hya· and hye·.

957 ***hya·** [1] *lower (inan.)* ***hya·ŋ** [2] *lower (an.)* **Oj** ya^{2} ?ni^{2} [1] yą^{31} ?ni [2] **U** hd^{y}ie^{23} [1] hd^{y}ǫ^{43} [2] **Tl** syo^{34} [1] **S** kwasyo [1] **Qe** lasau [1] (syo expected) **Tp** siǫ^{32} *go down* [2] **Pa** syáw^{32}, syéw^{2} [1] syúw^{2} [2] **VN** hyu [1] **Oz** hyo [1] **Ll** hyo·^{32} [1] hya·n^{32} [2] **Pe** hye [1] **To** hye [1] **A** hye [1] **Le** hya [1] **Qi** xia^{212} [1] (Vh expected) **Y** xaŋ [2] **Co** hyé·r^{2} [1].

958 ***hya·ŋ** *comb (hair)* **Pa** syow^{32}, syúw^{2} **Ll** hya·n^{32}

959 ***hya·ŋ** *cheap* **Tp** siǫ^{32} **Pa** syow^{32} **Ll** hya·hn^{23} **Co** hya·ŋ^{12}.

960 ***hya·ʔ^{L}** *rotten* **S** ma^{2}sa^{2}ʔ^{2} *it's going to rot* (sy is expected) **Tp** ma^{2}sia^{2}ʔ^{2} **Pa** syiʔ^{2} **Ll** rɨ^{23}hyo·ʔ^{3} **Lc** rɨhyaʔ **Pe** sɨhyeʔ **To** sahyöʔ (e expected) **A** mɨzahyeʔ **Le** za^{3}hya·ʔ^{3} *they are rotting* **Y** xoʔ.

961 ***hya·ʔ** [1] ***hya·** [2] *where?* **Ll** hya·ʔ^{31} [1] (o· expected) **Lc** hyaʔ [1] **Pe** hyeʔ [1] **To** hyeʔ [1] **A** hyeʔ [1] **Le** hyaʔ^{2} [1] (long vowel expected) **Qi** xiah^{242} [2] **Co** hye^{1} [2] (long vowel expected).

962 ***hyá·ʔ^{L}** *other* **Tl** syáʔ^{3} **Ch** syaʔ **S** syaʔ^{3} **Tp** siáʔ^{2} **Pa** syíʔ^{2} **VN** hyeʔ **Ll** hyaʔ^{3} (o expected) **Pe** hyaʔ (e expected) **To** hyeʔ **A** hyaʔ (e expected) **Le** hyaʔ **Qi** xiahʔ^{242} (34 expected) **Co** hyéʔ^{12}.

No Consonant

963 ***i·ʔ** *grind* **Tl** gwúʔ^{2} *grind tortilla dough* (reflects *wi·ʔ) **Tp** ʔéiʔ^{32} **Pa** yeyʔ^{32} **Ll** i·ʔ^{3} *be ground* **Le** ʔi^{4}i·ʔ^{3} *is ground, milled.*

964 ***é·^{L}** [1] *float (intr. inan.)* ***é·ŋ^{L}** [2] *float (intr. an.)* ***é·^{LH}** (?) [3] *float (tr.)* **Pa** yé^{2} *(inan.)* [1] yá^{2} *(an.)* [2] **Ll** sɨ^{3}e·h^{3} [1] sɨ^{3}e·hn^{3} [2] e·^{32} [3] **Le** e·^{32} [3].

965 ***u·** [1] *be extinguished, erased (intr. compl.)* ~ ***iu·** [2] *be extinguished, erased (intr. incompl.)* ***iu·ŋ** [3] *extinguish, erase (tr.)* **Oj** ka^{3}ʔu^{2} [1] yi^{4} [2] **U** ai^{3} [2] **Tl** gí^{3} [2] ʔę́y^{3} [3] **Ch** ma ka gaw [1] nyo gi [2] **S** ma ka yei [2] **Qe** ka yei [2] **Tp** ka ag [1] **Pa** əw^{32} [1] yew [2] **VN** ka u [1] **Ll** ka^{23}u·^{3} [1] rɨ^{23}yö·^{3} [2] yu·n^{32} [3] **Pe** yö [2] **To** mɨ u [1] **Le** ma^{43}u·^{3} [1] i·^{4} [2] **Qi** dʸüh^{2} [2] **Co** yő·^{2} [2].

966 ***a·ŋ^{L}** [1] ***á·ŋ^{L}** [2] *three (an.)* **Oj** ʔǫ^{32} (tone 2 expected if [1] and tone 3 expected if [2]) **U** ǫ^{3} [1] **Ch** gǫ **S** gǫ́^{23} [2] (no accent expected) **Qe** gąu̯ **Tp** u̯ (might be a misrecording of the common ǫ reflex, but cf. the **Pa** form) **Pa** ú^{2} *three* ə́w^{2} hnyeʔ^{1} *three of us* [2] **VN** ǫŋ (ąŋ expected) **Ll** a·n^{3} [1] **Lc** o (apparently reflects a syllable without final *ŋ) **Le** a·y^{3} [1] **Qi** gaih^{23} [1].

967 ***á·ŋ^{HL}** *two (an.)* **Oj** ʔǫ^{4} **U** ǫ^{34} **Ch** gǫ **S** gǫ^{3} (23 expected) **Qe** gąu̯ **Tp** ǫ **Pa** ǫ́^{2} *two* ow^{3} hnyeʔ^{1} *two of us* (tone 3 expected) **VN** ąŋ **Ll** a·hn^{23} **Lc** o (apparently reflects syllable without final *ŋ) **Le** á·y^{4} **Qi** gai^{43} (gaih^{3} expected) **Co** gáŋ^{2} (long vowel expected).

968 ***ɨ·ʔ^{HL}** *swallow* **Ll** ɨ·ʔ^{23} **Le** ɨ·ʔ^{4}.

[blank]

Appendices

[blank]

Conventions

The following conventions are observed in appendices:

1. The symbol - indicates that no cognate has been identified to show the reflex in the specified environment.

2. The square brackets [ ] indicate that the enclosed consonant or part of consonant has a null reflex in the given vocalic environment.

3. In Ll-Co, where length is contrastive, no indication of length does not necessarily mean that the vowel is short; it often means that length differences were not noted in the data.

4. The symbol ˇ before a vowel indicates simultaneous palatalization of the preceding consonant, e.g., (s) ˇi indicates ši; (ŋ) ˇǫ indicates ñǫ.

[blank]

Appendix A:
Reflexes of Proto Chinantec Consonants

	*p	*t	*k	*kʷ	*ʔ	*b	*z
Oj	p	t	k	kw	ʔ	p	c;č(i,iu)
U	p	t	k	ku;k(ɨ,i·)	ʔ	p	c;tʸ,(i,ia,ia·); t(ia,ia·ʔ,ia·ŋ ia?ŋ)
Tl	p	t	k	kw	ʔ	p	c
Ch	p	t	k	kw	ʔ	p	c
M	p	t	k	kw	ʔ	p	c
S	p	t	k	kw	ʔ	p	c
Qe	p	t	k	kw;k(ɨ,i,e·)	ʔ	p	c
Z	p	t	k	kw;k(ɨ)	ʔ	-	c
Tp	p	t	k	ku;k(e· not ë or e·ʔ but ę̌ʔ,ą but not a)	ʔ	b	z
Pa	p	t	k	kw;k(e·ŋ,e· not ë or e·ʔ,a)	ʔ	b	z
VN	p	t	k	kw;ky(e);k(e·(ʔ)	ʔ	b	z
Oz	p	t	k	kw;ky(ë,e·(ʔ);k(ą but not a)	ʔ	b	z;ǰ(i,iu·)
Ll	p	t	k	kw	ʔ	b	z;ǰ(i,iu)
Lc	p	t	k	kw	ʔ	b	z;ǰ(i,iu)
Pe	p	t	k	kw	ʔ	b	z;ǰ(i,iu)
To	p	t	k	kw	ʔ	b	z;ǰ(i,iu)
RC	p	t	k	kw	ʔ	-	z;ǰ(i,iu)
A	p	t	k	kw	ʔ	b	z;ǰ(i,iu)
Le	p	t	k	kw	ʔ	b	z;ǰ(i)
Qi	p	t	k	kw	ʔ	p	c;tʸ(i,iu,ia·(ʔ) t(iă?)
Y	p	t	k	kw	ʔ	b	z;g(i,iu,ia)
Tm	p	t	k	-	-	b	z;g(i,iu,ia (ʔ))
Co	p	t	k	kw	ʔ	b	d;g(i,iu,ia)

	*g	*g^w	*s	*h
Oj	k	kw	s	h
U	k	ku;k(ɨ,i)	s	h
Tl	k	kw	θ	h
Ch	k	kw	θ	h
M	-	kw	θ	h
S	k	kw	θ	h
Qe	k	kw;k(ɨ,i,a· but not a·ʔ)	θ	h
Z	-	kw	-	h
Tp	g	gu;g(a· but not a·ʔ)	c	h
Pa	g	gw;g(e· not e·ʔ or e, a· but not a·ʔ)	c	h
VN	g	gw	s;cy(i); c(iu,ia)	h
Oz	g	gw;gy(i)	s;č(i); c(iu,ia)	h
Ll	g;ø(V·ʔ)	gw	s;š(i,e,iu)	h;hy(iu)
Lc	g;ø(V·ʔ)	gw	s;š(iu)	h
Pe	g;ø(V·ʔ)	gw	s;š(i)	h
To	g;ø(V·ʔ)	gw	s;š(i,iu)	h
RC	g;ø(V·ʔ)	gw	s;š(i,iu)	h
A	g;ø(V·ʔ)	gw	s	h
Le	g	gw	s;š(i,e)	h;š(i); s(iu)
Qi	g;d(iă,ia·ŋ); d^y(i,ia·)	kw	s	h;x(iu)
Y	g	gw	s	h
Tm	-	gw	-	h;hy(iu)
Co	g	gw	s	h;hy(iu)

	*m	*n	*ŋ
Oj	m	n;ñ(i,iŭ,iu·ʔ)	ŋ;ñ(i,iu)
U	m;ø(ɨ,ə,a·(ʔŋ) but not ă or a·ʔ)	n	ŋ;ñ(i,iu)
Tl	m	n	ŋ;ŋw(i$^{1/2/4}$)
Ch	m	n	ŋ;ny(i);n(iu)
M	m	n;ny(i)	ŋ;ny(i);n(iu)
S	m	n;ny(i)	ŋ;ny/m(i);n(iu)
Qe	m	n;ny(i)	ŋ;ny/m(i);ny(iu)
Z	-	-	ŋ
Tp	m	n	ŋ
Pa	m	n	ŋ;ŋy(i)
VN	m	n	ŋ;ŋy(i)
Oz	m	n	ŋ;ñ(i,iu·)
Ll	m	n;ñ(i,e·ʔ,iŭʔ)	ŋ;ñ(i,iu)
Lc	m	n;ñ(i,iŭʔ)	ŋ
Pe	m	n;ñ(i)	ŋ
To	m	n;ñ(i)	ŋ;ñ(i,iu)
RC	m	n;ñ(i)	ñ(iu)
A	m	n;ñ(i,e·ʔ,iŭʔ)	ŋ;ñ(i,iu)
Le	m	n;ñ(i,e·ʔ)	ŋ;ñ(i)
Qi	m	n	ŋ;ñ(i,iu)
Y	m	n	ŋ;ñ(i)
Tm	-	-	ñ(i)
Co	m	n	ŋ

	*w	*l	*y	*r
Oj	w	l	y	r
U	u;ø(ɨ);g(ɨ̞)	l	d^y;d(uŋ)	r
Tl	gw	l	d;g(uʔŋ,ṵ·ʔ);dy(á not ą); gy(a-,ą·ŋ)	r
Ch	gw	l	d;g(u·,ṵ·ʔ);gy(ą·ŋ)	r
M	w;g(ɨ̞)	l	d;g(uʔ,ṵ·ʔ)	r
S	w	l	d;y(u·,ŭʔ,ṵ·ʔ);dy(a·)	r
Qe	w	l	d;y(ŭʔ,ṵ·ʔ);dy(a·)	r
Z	-	l	d^y	r
Tp	u	l	g;gi(a)	r
Pa	w	l	gy	r
VN	w;ø(ɨ,ɨ̞)	l	gy	ø
Oz	w;ø(ɨ)	l	gy	ø
Ll	w	l	y (or ñ(Ỵ)	r;ø(i,u,Ỵʔ)
Lc	w	l	y	r;ø(i,u,Ỵʔ)
Pe	w	l	y	r
To	w	l	y	r;ø(i,u,Ỵʔ)
RC	w	l	y (or ñ(Ỵ)	r
A	w	l	y	r;ø(i,u,Ỵʔ)
Le	v	l	y	r;ø(i,u)
Qi	w	l	y	r
Y	v	l	y	r
Tm	-	l	g	-
Co	w	l	y	r

	*ʔg	*ʔm	*ʔn	*ʔŋ
Oj	k	ʔm	ʔn;ʔñ(iu)	ʔŋ;ʔñ(iu)
U	k	ʔm;ʔ(ɨ,i except i·ʔ,e· but not e·ʔ,ăʔ,a· but not a·ʔ)	ʔn	ʔŋ;ʔñ(iu)
Tl	k	m	n	ŋ
Ch	k	ʔm	ʔn	ʔŋ;ʔn(iu,ia); ʔny(iu·)
M	k	ʔm	ʔn	ʔn(iu,ia); ʔny(iu·)
S	k	ʔm	ʔn	ʔŋ;ʔn(iu,ia); ʔny(iu·)
Qe	k	ʔm	ʔn	ʔŋ;ʔny(iu) ;ʔn(ia)
Z	-	ʔm	ʔn	-
Tp	g	ʔm	ʔn	ʔŋ
Pa	g	ʔm	ʔn	ʔŋ
VN	g	ʔm	ʔn	ʔŋ
Oz	g	ʔm	ʔn	ʔŋ;ʔñ(iu·)
Ll	g	ʔm	ʔn;ʔñ(iu)	ʔŋ;ʔñ(iu)
Lc	g	ʔm	ʔn;ʔñ(iu)	ʔŋ
Pe	g	-	ʔn;ʔñ(iu)	ʔŋ
To	g	ʔm	ʔn;ʔñ(iu)	ʔŋ
RC	-	ʔm	ʔn;ʔñ(iu)	-
A	-	ʔm	ʔn;ʔñ(iu)	ʔŋ
Le	g	m	n;ñ(i)	ŋ
Qi	ʔg	ʔm	ʔn	ʔŋ;ʔñ(iu)
Y	ʔg	ʔm	ʔn	-
Tm	-	ʔm	-	-
Co	ʔg	ʔm	ʔn	ʔŋ

	*ʔw	*ʔl	*ʔy	*hg
Oj	ʔw	ʔl	ʔy	-
U	ʔu;ʔ(ɨ)	ʔl	ʔd^{y}	-
Tl	gw	l	gy;g(i)	-
Ch	ʔw	ʔl	ʔy;y(i)	-
M	ʔw	ʔl	ʔy	-
S	ʔw	ʔl	ʔy;ʔ(i)	-
Qe	ʔw;ʔ(ɨ)	ʔl	ʔy;ʔ(ĩ but not ĩʔ)	-
Z	ʔw	ʔl	ʔy	-
Tp	ʔu	ʔl	ʔi;g(i)	-
Pa	ʔw;ʔ(e·ʔ,e·ʔ,a·ʔ but not e·ʔŋ nor a·ʔŋ)	ʔl	ʔy	-
VN	ʔw;ʔ(ɨ)	ʔl	ʔy;ʔ(i)	-
Oz	ʔw	ʔl	ʔy;ʔ(i)	-
Ll	ʔw	ʔl	ʔy;ʔ(i)	-
Lc	ʔw	ʔl	ʔy;ʔ(i)	-
Pe	ʔw	ʔl	ʔy;ʔ(i)	-
To	ʔw	ʔl	ʔy;ʔ(i)	-
RC	ʔw	-	ʔy	-
A	ʔw	ʔl	ʔy;ʔ(i)	-
Le	v	l	y;ʔ(i)	-
Qi	ʔw	ʔl	ʔy;ʔ(ɨ,i)	hg
Y	ʔw	ʔl	ʔy	hg
Tm	-	-	ʔ(i)	-
Co	ʔw	ʔl	ʔy;ʔ(ɨ,i)	hg

	*hm	*hn	*hŋ
Oj	hm	hn;hñ(iu)	hŋ;hñ(i,iu)
U	hm;h(ɨ,i,e· but not ë, a· but not a·?)	hn	hŋ;hñ(i,iu);h(ia·)
Tl	hm	hn	hŋ
Ch	hm	hn	hŋ;hny(i);hn(iu,ia)
M	hm	hn	hŋ;hny(i);hn(iu,ia)
S	hm	hn;hny(ĭ)	hŋ;hny(i);hn(iu,ia)
Qe	hm	hn;hny(ĭ)	hŋ;hny(i,iu);hn(ia)
Z	-	hn	-
Tp	hm	hn	hŋ
Pa	hm	hn	hŋ;hŋy(i)
VN	hm	hn	hŋ;hŋy(i)
Oz	hm	hn	hŋ;hñ(i,iu·);h(ia·)
Ll	hm	hn;hñ(ĭ,iu)	hŋ;hñ(i,iu);h(ia)
Lc	hm	hn	hŋ;hñ(iu);h(ia)
Pe	hm	hn;hñ(ĭ,iu)	hŋ;hñ(iu);h(ia)
To	hm	hn;hñ(ĭ,iu)	hŋ;hñ(iu);h(ia)
RC	hm	hn;hñ(iu)	hñ(iu)
A	hm	hn	hŋ; h(ia)
Le	hm	hn;hñ(i)	hŋ;hñ(i);h(ia)
Qi	hm	hn	hŋ;hñ(i,iu)
Y	hm	hn	hŋ; h(ia)
Tm	-	hn	-
Co	hm	hn	hŋ; h(ia)

	*hw	*hl	*hy	no consonant
Oj	hw	hl	y	ʔ;y(iu)
U	hu;h(ɨ,i)	hl	hd^{y}	ø
Tl	hw;h(ɨ· but not ɨ·ŋ,i·)	hl	sy;s(ɨ,i)	g;ʔ(iuŋ)
Ch	hw;h(ɨ·,i· but not i·ŋ)	hl	sy;s(ɨ,i)	g
M	hw;h(ɨ,i)	hl	s(ɨ)	-
S	hw	hl	sy;s(ɨ,i)	g;y(iu)
Qe	hw;h(ɨ·,a· but not a·ʔ)	hl	sy;s(ɨ,i)	g;y(iu)
Z	f	-	-	-
Tp	hu;h(a· but not a·ʔ)	hl	si;s(ɨ,i,iu)	ø;ʔ(i)
Pa	hw;h(a· but not a·ʔ)	hl	sy;s(ɨ,i)	ø;y(i,e,iu)
VN	hw;h(ɨ·)	hl	hy;h(ɨ,i)	ø
Oz	hw;h(ɨ,i·,e·)	hl	hy;h(ɨ,i)	-
Ll	hw	hl	hy;h(ɨ,i)	ø;y(iu)
Lc	hw	hl	hy;h(ɨ)	ø
Pe	hw	hl	hy;h(ɨ)	y(iu)
To	hw	hl	hy;h(ɨ,i)	ø
RC	hw	hl	h(ɨ)	-
A	hw	-	hy;h(ɨ,i)	-
Le	f	hl	hy;š(ɨ,i)	ø
Qi	f	hl	x;h(ɨ,i)	g;d^{y}(iu)
Y	f	hl	x;h(i)	-
Tm	f	hl	-	-
Co	hw	hl	hy;h(ɨ,i)	g;y(iu)

Appendix B:
Reflexes of Proto Chinantec Nuclear Elements

	*ɨ	*ɨ̨	*ɨ̰
Oj	ɨ;(h[y])i	ɨ̨	ɨ
U	eg;(z)ei; (hy)i;(h[w])eu	ęg;([w]/h[w])ụ	ag;(z)ai;(k[ʷ])u;(w/ʔ[w]/h[w])eu
Tl	eg	ęg	ag;(kʷ/gʷ/w/ʔw)u;(h[w])ew
Ch	eg	ęg	ag;(kʷ/gʷ/h[w])u;(w/ʔw)eg
M	ɨ;(h[w])u	ɨ̨	ɨ;(kʷ/h[w])u
S	ɨ	ɨ̨	aɨ/a;(kʷ/gʷ/w/ʔw/hw)u/o;(ʔ)a/ɨ
Qe	ɨ	ɨ̨	aɨ;(k[ʷ]/g[ʷ]/w/ʔ[w]/h[w])u
Z	ɨ	ɨ̨	ɨ;(k[ʷ])u
Tp	ɨ;(t/h/l/hl)ə; (hy)i	ɨ̨	ag;(k)ɨ;(kʷ/gʷ/w/ʔw/hw)ɨg
Pa	ɨ/ɨw;(hw)u;(hy)i	ɨ̨w;(h)ɨ̨; (ŋ/hm)ɨ̨/ɨ̨w	ay/ɨy;(k)ɨ
VN	ɨ;(hy)i	ɨ̨	aɨ;(kʷ/[w]/h[w])u
Oz	ɨ;(h[y])i	ɨ̨;(m/hm)ą	ɨ
Ll	ɨ;(h[y])i	ɨ̨	ɨ
Lc	ɨ;(h[y])i	ɨ̨	ɨ
Pe	ɨ;(h[y])i	ɨ̨	ɨ
To	ɨ;(h[y])i	ɨ̨	ɨ
RC	ɨ;(h[y])i	ɨ̨	ɨ
A	(h[y])i	-	ɨ
Le	ɨ;(h[y])i	ɨ̨	ɨ
Qi	ɨ;(z)i;(hw)u	ɨ̨	ɨh;(kʷ/gʷ/w/ʔw/hw)uh;(z)ih
Y	ɨ	-	ɨ;(z)i
Tm	ɨ	-	ɨ;(z)i
Co	ɨ;(z)i	ɨ̨	ɨ;(z)i

	*ɨ̨	*ɨʔ	*ɨ̨ʔ	*ɨ̨ʔ
Oj	ɨ̨;(n)ą	ɨ	ɨ̨;(n)ą	ɨ
U	ąg;(k[w]/m/ʔ[m]/h[m]/w)ụ	ag;(h[w])eu	(n)ąg;([m]/h[m]ʔụ	eg;(g[w])u;([w]/h[w])eu
Tl	ąg;(kw/w)ụ	ag;(hw)eg	ąg	eg;(gw)u;(h[w])ew
Ch	ąg;(w)ęg	ag	ąg	ag;(gw;h[w])u;(w)eg
M	(ʔm/hm)ą;(w)ụ	ɨ;(h[w])u	(m)ą	ɨ;(gw/w)u
S	ąɨ̨/ą;(kw)ụ;(m/ʔm/hm)ąɨ̨;(w)ụ/ọ	ɨ	ą	ɨ;(k)ɨe;(ʔl)aɨ;ʔhw)u
Qe	ą;(ʔm)ąɨ̨;(w)ụ	ɨ	ą	ɨ;(h[w])u
Z	-	-	-	(ʔl)aɨ
Tp	ąg/ɨ̨y;(m/ʔm/hm/w)ɨ̨g;(h/ʔn/ŋ/r)ąg	ɨ;(hw)ɨg	ɨ̨	ɨ
Pa	ąy/ɨ̨y;(w)ɨ̨y	ɨ	ɨ̨;(m/hm)ɨ̨w	ɨ/ɨ̨y;(k/ʔl)ay;(ʔ)ɨw;(gw)u/ɨ̨y;(w/ʔw/hw)u
VN	ąɨ̨;([w])ụ	aɨ	ąɨ̨	aɨ;(w/ʔ[w])u;(ʔl)ɨ
Oz	ɨ̨	ɨ;(h[w])u	ɨ̨	ɨ
Ll	ɨ̨	ɨ	ɨ̨	ɨ
Lc	ɨ̨	-	-	ɨ
Pe	ɨ̨	ɨ	-	ɨ
To	ɨ̨	ɨ	-	ɨ
RC	ɨ̨	-	-	ɨ
A	ɨ̨	ɨ	-	-
Le	ɨ̨	ɨ	ɨ̨	ɨ
Qi	ɨ̨h;(ʔ/w)ụh	ɨ	ɨ̨	ɨh;(w/ʔw)uh
Y	ɨ̨	-	-	-
Tm	-	-	-	-
Co	ɨ̨	ɨ	ɨ̨	ɨ;(z)i

	*ɨ̨ʔ	*ɨŋ	*ɨʔŋ	*ɨ̨ŋ
Oj	ɨ̨;(ʔn)ą	ɨ̨	-	-
U	ęg;(k[w]/[m]/ʔ[m]/h[m]/w)ụ	ąg;(z)ąɨ̨ (ʔl)	ąg	ąg
Tl	ęg;(k[w]/w)ụ	ęg	ęg	ęg
Ch	ęg	ęg	-	-
M	ɨ̨;(w)ụ	ɨ̨	-	-
S	ɨ̨;(kw/w)u;(h)ɨ̨ę;(m)ą/ɨ̨;(hm)ǫ	ɨ̨	-	ɨ̨
Qe	ɨ̨;(w)ụ	ǫ	-	-
Z	ɨ̨	-	-	-
Tp	ɨ̨	ɨ̨	-	ɨ̨
Pa	ɨ̨;(ʔm)ɨ̨/ɨ̨w	ǫ;(t/h/hl)a;(w/ʔw/hw)e	(kw)e;(s)ə	(ŋ)ǫ;(hm)ę
VN	ąɨ̨	(h)ɨŋ	-	-
Oz	ɨ̨	-	-	ɨ̨
Ll	ɨ̨	ɨn	ɨn	ɨ̨n
Lc	ɨ̨	-	-	-
Pe	ɨ̨	-	-	ɨ̨n
To	ɨ̨	-	-	-
RC	ɨ̨	-	-	-
A	ɨ̨	-	-	-
Le	ɨ̨	ɨy	-	-
Qi	ɨ̨h;(ʔ)ụh	ɨ	-	-
Y	-	-	-	-
Tm	ɨ̨	-	-	-
Co	ɨ̨	ɨŋ	ɨŋ	ɨ̨ŋ

	*ɨʔŋ	*ɨ·ŋ	*ɨ·ʔŋ	*ɨ·ŋ	*ɨ·ʔŋ
Oj	ɨ	ɨ	ɨ;(hy)ɨ	ɨ	-
U	-	ẹg;(k[w])ụ; (h[w])ẹụ	-	ạg;(ʔm)ụ	(m)ụ
Tl	ẹg	ẹg	ạg	ẹg	ạg
Ch	ẹg	ẹg	-	ẹg	-
M	ɨ	-	-	ɨ	-
S	ɨ	ạɨ;(kʷ/hw)ụ	ɨ	ạɨ	-
Qe	ɨ	ạɨ;(k[w]/h[w])ọ	ɨ	ạɨ	-
Z	-	-	-	-	-
Tp	ɨ/ạg	ɨ	ɨ	ɨ	-
Pa	ə	ạy/ɨy;(ʔ)a;(gʷ)e	ə;(w)e; (hy)i	ə;(ʔm)ɨy (ʔ)	-
VN	ɨ	ɨŋ	-	ɨŋ	-
Oz	ɨ	ɨ	-	ɨ	-
Ll	ɨn	ɨ·n	ɨ·n;(hy)i·n	ɨ·n	-
Lc	ɨ	ɨn	ɨ	-	-
Pe	ɨ	ɨn	-	-	-
To	-	-	-	-	-
RC	-	-	-	-	-
A	ɨ	-	-	-	-
Le	ɨy	ɨ·y	ɨy	-	-
Qi	-	uih	ɨih	ụɨ	-
Y	-	(gʷ)ə(ʔ)	-	-	-
Tm	-	-	-	-	-
Co	ɨŋ	ɨ·ŋ	ɨ·ŋ	ɨ·	-

	*ə	*ǫ	*ə·	*ǫ·
Oj	ə;(kʷ/ʔw)o	(n)ɨ/ą	ə;(ʔw)o	-
U	e	ę	e	-
Tl	ə;(kʷ/ʔw/hw)e	ę	ə;(w/ʔw)e	(m)ǫ/ęw
Ch	ə;(ʔw)e	ę	ə;(r/ʔw)e	(m)ǫ
M	(kʷ/ʔw/hw)ɨ	-	ə;(ʔw)ɨ	(m)ǫ
S	ɨe;(kʷ/ʔw/hw)e	ɨ/ę	ɨe;(w/r)e; (ʔw)a	(m)ụ
Qe	ə;(kʷ/ʔw)e	ę	ɨe;(r/ʔw)e	(m)ǫ
Z	(hw)e	-	-	-
Tp	ə	ǫ	ag;(w/r/ʔw)ə	(m)ụ
Pa	ɨw;(kʷ)ɨ;(ʔw)a	ą	ay/ɨy/ɨ/u;(w)u; (r)ɨy;(ʔw)u/ɨ/ay	(m)ụw/ǫw/ụ
VN	e;(kʷ/ʔw)ə	ę	a;(ʔw)a/ə	(m)ǫą
Oz	(kʷ/l/ʔw)a	ą	ɨ;(ʔw)ɨ/a	(m)ǫ
Ll	e;(t/kʷ/b/l/ʔw)ə	ɨ	ə·;(h)oʌ·	(m)ę·
Lc	e;(t/kʷ/ʔw)ə	-	ə	(m)ę
Pe	e;(t/kʷ/ʔw)ə	-	ə	(m)ę
To	e;(t/kʷ/ʔw)ə	-	ə	(m)ę
RC	(t/kʷ/ʔw)ə	-	ə	(m)ę
A	ə	-	ə	(m)ę
Le	e/a;(kʷ/b/ʔw)o	ɨ	o·;(r)e	(m)ę·
Qi	ə;(kʷ/b/ʔw)o	o	əh;(kʷ/w/ʔw)oh	-
Y	-	-	ə	-
Tm	-	-	-	-
Co	ə	a	ə·	(m)ǫ·

	*əʔ	*ə̣ʔ	*ə·ʔ	*ə̣·ʔ	*əŋ	*əʔŋ
Oj	-	-	ə;(hw)o	-	ɨ̨	-
U	e	-	e	-	ą	(s)ą
Tl	e	-	e	-	ę	-
Ch	-	-	e/ag	-	-	-
M	ɨ	-	ɨ	-	-	-
S	ɨe	-	e	-	-	-
Qe	-	-	e	-	-	-
Z	-	-	-	-	-	-
Tp	ə;(ʔw)e	-	ə;(s)ag	(m)ǫg	(ʔw)ɨ̨	-
Pa	ɨw	-	ɨ/ɨw;(s/ʔl)ɨw; (r)ɨ	-	a;(ʔw)e	(s)a
VN	-	-	a;(b)aɨ;([r])e	-	-	-
Oz	-	-	ɨ;([r])e	-	-	-
Ll	ə	-	ə;(ʔ)oʌ·	-	ən	ən
Lc	ə	-	ə	-	-	-
Pe	-	-	ə	-	-	-
To	ə	-	ə	-	-	-
RC	-	-	ə	-	-	-
A	-	-	ə	-	-	-
Le	o	-	e·;(ʔ/h)o·	-	oy	-
Qi	ə;(hw)o	-	əh;(b)o;(r)ɨh	-	(ʔw)oi	ə
Y	ə	-	ə	-	-	-
Tm	-	-	(b)ɨ	-	-	-
Co	ə	-	ə·	-	-	ə

	*ə̨ŋ	*ə̨ʔŋ	*ə·ŋ	*ə·ʔŋ	*ə̨·ŋ	*ə̨·ʔŋ
Oj	-	-	-	ą;(hm)ḭ	-	-
U	-	-	(ʔw)ę	ǫ	-	-
Tl	-	-	(ʔw)ę	-	-	-
Ch	-	-	ə̨	-	-	-
M	-	-	-	-	-	-
S	-	-	(h)ḭę;(ʔw)ę	-	-	-
Qe	-	-	-	-	-	-
Z	-	-	-	-	-	-
Tp	-	-	-	ǫ;(hm)ḭ	-	-
Pa	-	-	ə/ow/uw;(ʔw)a/e	(s)ą;(r)e; (ʔl)ə;(hw)a	-	-
VN	-	-	aŋ	-	-	-
Oz	-	-	ə̨	-	-	-
Ll	-	-	oʌ·n;(ʔw)ə·n	ə·n	-	-
Lc	-	-	a	-	-	-
Pe	-	-	-	-	-	-
To	-	-	an	-	-	-
RC	-	-	-	-	-	-
A	-	-	-	-	-	-
Le	-	-	a·y	e·y	-	-
Qi	-	-	aih	-	-	-
Y	-	-	aŋ	-	-	-
Tm	-	-	-	-	-	-
Co	-	-	ə·ŋ	əŋ	-	-

	*ị·	*i?	*ị?
Oj	ị	i	ị
U	ạị;(ŋ)ẹị;(k[ʷ]/h[w])ụ	ai;(?y)ei	ẹị;(h)ạị;(ŋ/hŋ)ị;(?m)ụ
Tl	ạy;(hw)ụ;(?)ẹy/ạy	i	(y)ị;(?/h)ạy;(ŋ)ị;(?m)ạg
Ch	ẹy;(ŋ)ị;(?)ị/ạy	i	ị;(?m)ạg
M	ị;(n/ŋ/hm)ẹị;(hm/hn)ạị	ai	ạị
S	ẹ;(ŋ/hm)ẹị;(?)ẹ/ị	e	ị;(?m)ạ
Qe	ạị;(ŋ)ẹị;(?)ạị/ẹị	ai;(s)e;(?y)ei	(ŋ)ị;(h)ẹị
Z	-	-	-
Tp	ẹị;(hw)ịg;(?)ẹị/ẹ	i	(ŋ)ị;(h)ạ;(?m)ẹ
Pa	ịw/ẹy;(h)ẹy/ịw/ẹ;(hw)ịy; (n)ẹy;(?n)ịw/ẹy/ạy	i;(?y)ey	ị
VN	ẹị;(w)ị	ei;(?[y])i	(ŋ)ị;(?m)ẹị
Oz	ị;(n/?n)ị;([w]/h[w])ọ	i	-
Ll	ị·	i	ị
Lc	ị	i	ị
Pe	ị	i	ị
To	ị	i	ị
RC	ị	-	-
A	-	i	ị
Le	ị·	i	ị
Qi	ịh	i	ị
Y	ị	i	-
Tm	ị·	i	-
Co	ị·	i	ị

	*i·ʔ	*ɨ·ʔ	*iŋ	*iʔŋ
Oj	i	ɨ	ɨ	ɨ
U	ei;(h[w])eu	ęɨ;(ŋ)ɨ	ąɨ	ąɨ
Tl	ay;(p)e;(k)i;(s)ey; (w)u;(h[w])ew	ęy;(ʔ/h/ŋ/[ʔ]n)ɨ	ɨ	-
Ch	ey;(p/ʔy)i	ɨ	-	ɨ
M	ei	-	-	-
S	ei;(p)i;(ʔ[y])e;(hw)u	ɨ;(ŋ)yę	-	ę
Qe	ai;(p)ei	ęɨ;(h)ɨ;(ŋ)ɨ/ąɨ	ęɨ	ąɨ
Z	i	ɨ	-	-
Tp	i;(t/ʔ)ei;(kʷ/w/hw)ɨ	ę;(n)ęɨ;(ŋ)ɨ	ę;(hw)ɨ	e
Pa	ey/i;(k)yey;(s)i; (ʔy)iw;(ʔw/hw)u	ɨ;(n)ęy;(ŋ)yɨ	e	e
VN	ei;(gʷ/hw)i	ęɨ;(m)ę	ęɨ	-
Oz	i;(g[w])yö;(h[w])ö	ɨ	ɨ	-
Ll	i·	ɨ·	in	in
Lc	i	-	-	-
Pe	i	ɨ;(h)ę	-	-
To	i	ɨ	-	-
RC	i	ɨ	-	-
A	i	-	-	-
Le	i·;(k)yi·;(z/s)ɨ·	ɨ·	ɨ	(s)ɨy
Qi	ih;(k)ʸih	ɨh	-	ɨ
Y	i	ɨ	-	-
Tm	-	-	-	-
Co	i·	ɨ·	iŋ	iŋ

	*ɨŋ	*ɨʔŋ	*i·ŋ	*i·ʔŋ	*ɨ·ŋ	*ɨ·ʔŋ
Oj	ɨ	ɨ	ɨ;(kʷ/hw)ɨ	-	ɨ	-
U	ɛ̨ɨ	ą̨ɨ	ą̨ɨ;(k[ʷ])ʉ; (h[w])ɛ̨ʉ	-	ɛ̨ɨ;(s)ą̨ɨ	ą̨ɨ
Tl	-	ɨ	ɛ̨y;(hy)ɛ̨g	-	ɨ	ɨ
Ch	ɨ	ɛ̨;(h)ɨ	ɨ;(kʷ)ʉ; (hw)ɛ̨g	-	-	-
M	-	-	-	-	-	-
S	i	ɨ	ɨ;(hw)ʉ	-	yɛ̨	-
Qe	ɛ̨ɨ	-	(hy)yɛ̨ɨ; (k[ʷ])ǫ	-	yɛ̨ɨ	-
Z	-	-	-	-	-	-
Tp	ɨ	ɛ̨	ɛ̨;(kʷ/hw)ɨ	-	ɛ̨	ɛ̨
Pa	ɛ̨	ɛ̨	e	-	ɛ̨/yɛ̨	ɛ̨
VN	ɨŋ	-	-	-	ɨ;(s)ɛ̨	-
Oz	-	-	-	-	(s)ɛ̨	ɨ
Ll	ɨn	ɨn	i·n	-	ɨ·n	ɨn
Lc	-	-	-	-	-	-
Pe	-	-	-	-	-	-
To	-	-	-	-	ɨn	-
RC	-	-	-	-	-	-
A	-	-	(hy)e	-	in	-
Le	-	-	i·n;(s)ɨ·y	-	yɨ·y;(s)ɨ·y	-
Qi	ɨ	-	-	-	ɨh;(k)ʸɨh	-
Y	-	-	-	-	-	-
Tm	-	-	-	-	-	-
Co	ɨŋ	ɨ	i·ŋ	-	ɨ·ŋ	ɨŋ

	*e	*ę	*e·	*ę·
Oj	e;(kʷ/gʷ/hw)a	ą	e;(kʷ)o	(ʔm/hm)ǫ
U	e;(kʷ/gʷ)a	ą	e	(h[ŋ])ɨ̨ę;(ʔ[m]/h[m])ụę
Tl	e;(kʷ/gʷ)a	ą;(hŋ)yą	ə;(kʷ)o	(h[ŋ])ęw;(m/hm)ǫ;(ʔm)ǫ/ęw
Ch	ɨe;(kʷ/b/hw)a	ą	e;(kʷ)o	(ʔm/hm)ǫ
M	-	-	(kʷ)o	-
S	ɨe;(kʷ/gʷ)a	ę;(ʔm/hm)ą	e/a;(kʷ)o	(m/ʔm/hm)ụ
Qe	e;(kʷ)a	-	(k[ʷ]/g[ʷ])u	(m/ʔm/hm)ǫ
Z	(kʷ)a	-	-	-
Tp	ə;(kʷ/b/gʷ)a	ę;(ʔm/hm)ą;(hŋ)iǫg	ag;(k[ʷ])u	(ʔm)ụ;(hm/hŋ)iǫ
Pa	e;(k)ye;(kʷ/gʷ)ɨ;(b)a	ą	e/ɨw;(k[ʷ]/g[ʷ])ow/uw	(ʔm)ǫ/ǫw;(hm)ǫ
VN	(p/gʷ)a;(k[ʷ])yu;(b)e	-	e;(k[ʷ])o	(ʔm)ɨ̨;(hm)ę
Oz	(k[ʷ]/g[ʷ])ya;(hw)a	-	e;(k[ʷ])yo	(ʔm/hm)ę
Ll	e;(k)ye;(kʷ/b/gʷ/hw)a	ę	e·;(kʷ/gʷ)a·	(m/ʔm/hm)ę·
Lc	(kʷ)a	-	e;(kʷ)a	(hm)ę
Pe	(kʷ)a	-	e;(kʷ)a	-
To	e;(kʷ)a	ę	e;(kʷ)a	-
RC	(kʷ)a	-	(kʷ)a	-
A	ə;(kʷ/gʷ/h)e;(hw)a	ę	a;(kʷ)ö	(hm)ę
Le	e;(t)ye;(gʷ)a	ą;(ʔm/hm)ę	e·	(ʔm/hm)ę
Qi	e;(kʷ/b/gʷ/hw)a	ą	eh;(kʷ)ah	(m/ʔm/hm)ąh
Y	(kʷ/b/hw)e	ę;(hm)ą	e	(hm)ę
Tm	-	-	-	-
Co	(kʷ)ia;(b/hw)e;(gʷ)a	ę·;(hm)ią	e·	(m/ʔm)ę·;(hm)ǫ

	*eʔ	*ęʔ	*e·ʔ	*ę·ʔ
Oj	e	ę	(kʷ/ʔw/hw)a	(ʔm)ą
U	e	ę	(p/kʷ/ʔw/hw)a	(ʔm)ą;(h[m])ụę
Tl	e;(h)ə	ę	e;(kʷ/ʔw/hw)a	(ʔm)ą;(hm)ęw
Ch	e/ɨ;(ʔ)ɨe	-	(kʷ/ʔw)a	(ʔm)ą
M	aɨ/a	-	e;(hw)a	-
S	ɨe;(t)ye;(/)e	-	e;(kʷ/ʔw/hw)a	(ʔm)ą
Qe	e	(k[ʷ])ụ	(kʷ/ʔw)a	(ʔm)ą
Z	-	-	(ʔw)a	-
Tp	ə;(t)e	ę;(k[ʷ])ǫ	(p)ə;(kʷ/ʔw/hw)a	(ʔm)ąg/ɨ;(hm)ǫg
Pa	e;(k)yi	(k[ʷ])ą	e;(p)ə;(kʷ)ɨ/u; (ʔ[w])u;(hw)ɨ	(ʔm/hm)ą
VN	ai	-	(k[ʷ])o;(ʔw/hw)e	-
Oz	e	-	(k[ʷ])ya;(h[w])ö	(ʔm)ę/ą
Li	e;(k)ye	-	e·;(p/kʷ/ʔw/hw)a·	(ʔm/hm)ę·
Lc	e	-	-	-
Pe	e	-	-	-
To	e;(ʔ)ə	-	(ʔw/hw)e	-
RC	-	-	-	-
A	e;(ʔ)ə	-	(kʷ)ö	-
Le	e;(t)ye	-	(ʔ/[ʔ]w)e·;(s)ˇe·; (hw)a	(ʔm)ę
Qi	e	-	eh;(kʷ/ʔw/hw)ah	-
Y	e	-	(ʔw/hw)a	-
Tm	-	-	-	-
Co	e	-	e·	(ʔm)ę·;(hm)ǫ·

	*eŋ	*eʔŋ	*ęŋ	*ęʔŋ	*e·ŋ
Oj	-	(b)ę	-	-	(k^{w})ą
U	(b)ą;(hw)ę	-	-	-	ę
Tl	ę	-	-	-	ę;(k^{w})ǫ
Ch	(g^{w})ą	-	-	-	(k^{w})ǫ
M	-	-	-	-	-
S	-	(g^{w})ą	-	-	-
Qe	-	(g^{w})ą	-	-	-
Z	-	-	-	-	-
Tp	ɨ;(b/g^{w}/hw)ą	(s)iog; (g^{w})ą	-	-	ę
Pa	a;(b)ǫ;(g^{w})ɨ; (hm)ǫw	(b)ą;(g^{w})ɨ	-	-	a
VN	-	-	-	-	(k[^{w}])ǫ
Oz	-	(b)ą	-	-	-
Ll	en	en	-	-	e·n;(k^{w})a·n
Lc	-	(g^{w})an	-	-	-
Pe	-	-	-	-	-
To	-	-	-	-	-
RC	-	-	-	-	-
A	en	-	-	-	en
Le	ey	(g^{w})ey	-	-	e·y
Qi	-	-	-	-	-
Y	-	-	-	-	-
Tm	-	-	-	-	-
Co	-	-	-	-	e·ŋ

	*e·ʔŋ	*ę·ŋ	*ę·ʔŋ
Oj	-	-	-
U	(p/ʔw)ą	-	-
Tl	(ʔw)ą	-	-
Ch	-	(k[^{w}])ǫ	-
M	-	-	-
S	(ʔw)ą	(k^{w})ụ	-
Qe	(ʔw)ą	-	-
Z	-	-	-
Tp	-	-	-
Pa	yow;(g^{w})e;(ʔw/hw)a	(k[^{w}])ǫ	(hm)ǫw
VN	-	-	-
Oz	-	-	-
Ll	(p/g^{w}/ʔw/hw)e·n	(k^{w})ę·n	ę·n
Lc	(ʔw)a	-	-
Pe	-	-	-
To	(ʔw)ą	-	-
RC	-	-	-
A	(ʔw)ą	-	ę
Le	ya·;(ʔw)ey	(k^{w})ę·y	ą
Qi	-	-	ęịh
Y	-	-	-
Tm	-	-	-
Co	-	(ʔw)ę·ŋ	-

	*u	*ṷ	*u·
Oj	u	ǫ	u;(y)i
U	eu	ęṷ	au;(z)ai
Tl	u	ęw;(k/ŋ/ʔn)ṷ	aw
Ch	u	ṷ	aw;(y)i
M	u; (ʔ)eu	ṷ	au;(z)yu
S	u	ṷ	aɨ/ɨe/u;(h)aɨ/u;(l)aɨ;(y)ei
Qe	u	ṷ;(t/g/s)ęṷ	eu
Z	u	ṷ	ɨ
Tp	ɨ;(t/l)u	(t)ǫ/ɨ̨;(s/ŋ)ɨ̨;(h)ǫ	ag;(k/g/h)u;(z)ɨg/ ag;(y)ei
Pa	u;(ʔ/h)ɨ/ɨw	(t)ǫ/ɨ̨;(s)ɨ̨;(h)ǫ; (ŋ)ɨ/ɨ̨w	əw/aw/uw/o;(k)ow;(g)u;(h)uw/ əw/o;(l)aw/əw/uw;(y)ew;(ø)əw
VN	u	ǫ	au;(ø)u
Oz	u	ṷ	u
Ll	u	ṷ	u·;(y)ö·
Lc	u	-	u
Pe	u	ṷ	u
To	u	ṷ	u
RC	u	ṷ	u
A	-	ṷ	(y)ö
Le	u	ṷ	u·
Qi	u	ṷ	uh;(z/y)üh
Y	u	ṷ	u;(z)ü
Tm	-	-	(k)u
Co	u	ṷ	u·;(z/y)ö·

	*ṷ·	*uʔ	*ṷʔ	*u·ʔ
Oj	ǫ;(y)i̧	u	-	u;(y)i
U	ąṷ;(y)ęi̧	au;(y)i	-	eu;(y)ei;(hy)i
Tl	ąw	aw;(ʔ)u;(y)i	(n)ąw;(y)i̧	u;(k)u/aw;(ʔ/g/y)aw
Ch	ąw	aw	-	u;(k/y)aw
M	ąṷ	au;(y)i	-	u;(y)au
S	ąi̧/i̧e/i̧;(z/y)ąi̧	i̧e;(y)e	-	u;(k/y)i̧e
Qe	ęṷ	eu;(y)e	-	eu;(y)e
Z	-	(y)ei	-	(h)u
Tp	(k)ąg/ǫ;(n)ąṷ/ąg; (y)ęi̧;(r)ąg	u;(y)i	(n)ǫ;(y)ę	i̧;(k)ag/i̧;(h)u/i̧; (y/hy)ei
Pa	(k)ąw/ǫw;(n)ṷw/ ąw;(y)ęw;(r)ąw	ow/ə;(ʔ)i̧w	(n)i̧	u;(k)aw/əw;(ʔ)u/w; (g)i̧;(h)u/i̧/o
VN	(n)ąṷ;(y)ṷ	au	-	au;(y)u
Oz	(n)ṷ;(y)ǫ̈	u	-	u;(y)ö
Ll	ṷ·;(y)ǫ̈·	u	(n)ṷ	u·;(y/hy)ö·
Lc	ṷ	u	-	(y)ö
Pe	ṷ	u	-	u;(y)ö
To	ṷ;(y)ǫ̈	u	-	u
RC	ṷ;(y)ǫ̈	-	-	-
A	(y)ǫ̈	-	-	u;(y)ö
Le	ṷ·	u	-	u·
Qi	ṷh;(y)ǫ̈h	u	-	uh;(z/y/hy)üh
Y	ṷ	-	-	(y)ü
Tm	-	-	-	-
Co	ṷ·;(y)ǫ̈·	u;(y)ö	-	u·;(z/y/hy)ö·

	*ṵ·ʔ	*uŋ	*uʔŋ	*ṵŋ	*ṵʔŋ	*u·ŋ	*u·ʔŋ	*ṵ·ŋ	*ṵ·ʔŋ
Oj	ǫ;(y)i̧	-	(h)ǫ	ǫ	-	ǫ	ǫ	ǫ	-
U	ę̨ṵ;(y)ę̨i̧	(y)ǫ	ą̨ṵ;(h)ę̨ṵ	ą̨ṵ	-	ą̨ṵ	ę̨ṵ	ą̨ṵ	-
Tl	ṵ;(y)i̧	(y)ǫ	(z)ę̨w;(y)i̧	ą̨w	-	ą̨w	ę̨w	ę̨w	-
Ch	ṵ;(y)i̧	(y)ǫ	(h)ǫ	ǫ	-	ṵ	ṵ	-	-
M	(y)ę̨i̧	-	-	-	-	-	-	ę̨ṵ	-
S	ǫ;(y)ę̨i̧	(y)ǫ	(z/h)ǫ	ǫ	-	ę̨>	ą̨i̧	-	-
Qe	ę̨ṵ;(y)ę̨	(y)ǫ	(z)ę̨ṵ	-	-	ę̨ṵ	ę̨ṵ	(y)ę̨	-
Z	-	-	-	-	-	-	-	-	-
Tp	ǫ;(k)i̧/ ą̨g;(y)ę̨	-	-	ǫ	-	-	i̧	i̧	-
Pa	ǫ;(y)ṵ	-	(hl)u	ǫ	-	ow;(y)uw	uw;(r)o	ǫ	ǫ
VN	(y)ṵ	-	-	ǫ	-	-	-	-	-
Oz	(y)ǫ̈	-	-	-	-	-	ǫ̈	-	-
Ll	ṵ·;(y)ǫ̈·	-	(z/h/hl)un	ṵn	-	u·n	u·n	ṵ·n	-
Lc	-	-	-	-	-	-	-	-	-
Pe	-	-	-	-	-	-	-	-	-
To	(y)ǫ̈	-	-	-	-	-	-	ṵ	-
RC	(y)ǫ̈	-	-	-	-	-	-	ṵ	-
A	(y)ǫ̈	-	-	-	-	-	-	ṵ	-
Le	ṵ·	-	(h)uy	ṵy	-	u·y	o·y;(k) uy	ṵ·y	-
Qi	ṵ	-	(hl)ui	-	-	uih	uih	ṵh	-
Y	-	-	-	-	-	-	u	-	-
Tm	-	-	-	-	-	-	-	-	-
Co	ṵ·	-	-	ṵŋ	-	-	uŋ	ṵ·ŋ	-

	*a	*ą	*a·
Oj	a	ą	o;(ʔy/hy)e;(gʷ/ʔw)o
U	a;(z)ia	ą	o;(z/y/ʔy/hy)ie;(gʷ/ʔw/hw)e
Tl	a	ą	o/ew;(gʷ/s)o;(y)u;(r)ew;(ʔy)o/u
Ch	a	ą	o;(ʔy)o/u
M	a	ą	o;(ʔy)e
S	a	ą	o;(y)u;(ʔy)o/u
Qe	a	ą	o;(k)o/au;(ʔ/z/s/h)au;(g[ʷ]/y/ʔy/h[w])u
Z	a	ą	o;(ʔy)o/u
Tp	a	ą	o/au;(g[ʷ])u;(y)iog;(r/ʔl)au;(ʔ[y])iog/io
Pa	a;(gʷ)i;(ʔy)i; (hw)u	ą	aw/əw;(k/hw)ow;(g[ʷ])uw/o;(s)aw/o;(h)aw/ əw/u/o;(l)aw/əw/o;(y)ew;(ʔy/hy)aw/ew/o/iw
VN	a	ą	ao/oa;(z/[r]/ʔw)o;(gʷ)a;(ʔl)ao;(ʔy/hy)u
Oz	a	ą	o;([r])ö;(ʔy)a/o/u
Ll	a;(k/b/gʷ/h/ʔw ʔl/hw/hl)o;(l)a/o	ǫ	o·
Lc	(t)a/o;(z/ʔy)a; (b/gʷ/ʔw/hw)o	ǫ	o;(y/ʔy)a
Pe	o;(z)a/o;(l)a;(ʔy)e	ǫ	o;(y/ʔy/hy)e
To	(t/z)a;(l)a/o;(ʔy)e; (b/gʷ/ʔw/hw)o	ǫ	o;(y/ʔy/hy)e
RC	(ʔy)a	ǫ	o;(ʔy)a
A	a;(t)a/o;(ʔy)e; (b/gʷ/ʔw/hw)o	ǫ	o;(y/ʔy/hy)e
Le	a	ą	a·
Qi	o;(z/ʔy/hy)a	ǫ	oh;(z)ah;(y/ʔy/hy)iah
Y	a;(z)e	ą	o;(z)a;(ʔy)e
Tm	(z)a	ą	o
Co	a;(k)o;(z)ia	ą	o·;(z/y/ʔy/hy)e·

	*ą·	*aʔ
Oj	ǫ;(y)ę	o;(ʔy)e
U	ǫ;([m]/ʔ[m]/h[m])ụę;(y)ię	o;(z/ʔy)ie
Tl	ǫ/ęw;(kʷ)ụ;(s/r)ęw;(h/ŋ)ǫ	o
Ch	ǫ	o
M	ǫ	-
S	ǫ;(m/ʔm/hm)ụ	o
Qe	ǫ;(h)ąụ;(n)ǫ/ąụ	o;(z/ʔg)au;(ʔy)u
Z	-	-
Tp	ąụ;(n/ʔn)ąụ/ǫ;(ŋ)ǫ;(y)iǫg/iǫ;(ʔm/hm)ụ	o;(t)a
Pa	ǫ;(t)ąw;(h)ąw/ǫw/ęw;(n)ąw/ęw/ụ/ǫ;(y)ęw;(r)ǫ/ęw; (ʔm)ǫw/ụ/ǫ;(hm)ụw/ǫ;(ʔn)ąw/ǫ;(hn)ąw/ụw	a;(hw)a
VN	(t/h)ąǫ;(m/n/ʔm/hm)ǫą/ǫ;(ʔn)ąǫ/ǫ	oa;(ʔy)a
Oz	ǫ;([r])ǫ̈	o;(ʔy)a
Ll	ǫ·	o
Lc	-	(ʔy)a
Pe	ǫ;(y)ą	o;(ʔy)e
To	ǫ	o;(ʔy)e
RC	ǫ	(ʔy)a
A	ǫ;(y)ę	(ʔy)e
Le	ą·	a
Qi	ǫh;(y)ią	o;(z/ʔy)a
Y	ǫ	(ʔg)a
Tm	-	o
Co	ǫ·;(y)ę·	a;(ʔg)o

	*ą?	*a·?	*ą·?
Oj	ǫ	a	ą
U	ǫ;([m]/ʔ[m])ụę	a	ą
Tl	ǫ;(ʔn)ęw	a	ą
Ch	ǫ	a	ą
M	ǫ	a	ą
S	ǫ;(ʔm)ụ	a	ą
Qe	(h)ąụ;(r)ǫ	a	ą
Z	-	a	-
Tp	ǫ;(h)ą;(ʔm)ụ	a;(z/y)o	ą;(k[ʷ])ǫ
Pa	ǫ;(h)ą;(ʔn)ąw	a;(k[ʷ]/h[w])u;(z/ʔ[w])o; (gʷ)i/a;(ʔy/hy)i	ą;(k[ʷ])ǫ
VN	(h)ąǫ;(ʔm)ǫą	oa;(kʷ/gʷ/hw)a;(ʔy/hy)e	(m)ǫą
Oz	ǫ	a;(k[ʷ])ya	(k[ʷ]/s/m/ʔm)ǫ;(h/hŋ)ą
Ll	ǫ	o·	ǫ·
Lc	-	o;(y/ʔy/hy)a	ǫ
Pe	-	o;(y/ʔy/hy)e	ǫ
To	-	o;(y/ʔy/hy)e	ǫ
RC	-	o;(ʔy)a	ǫ
A	-	o;(ʔy/hy)e	ǫ
Le	ą	a·	ą·
Qi	ǫ	oh;(z)ah;(ʔy/hy)iah	ǫh
Y	-	o;(z)a;(ʔy)e	ą
Tm	-	-	-
Co	ǫ;(h/ʔn)ą	o·;(z/ʔy/hy)e·	ǫ·

	*aŋ	*aʔŋ	*ąŋ	*ąʔŋ	*a·ŋ	*a·ʔŋ
Oj	-	ą	ą	ą	ą	ą
U	ą	ą	ą	ą	ǫ;(z)i̧ǫ	ą
Tl	ą	ą	ą	ą	ǫ	ą
Ch	ą	ą	ą	ą	ǫ	ą
M	-	ą	-	-	-	-
S	ą	ą	ą	ą	ǫ	ą
Qe	ą	-	ą	ą	ąu̧	-
Z	-	-	-	-	-	-
Tp	ą	ą	ą	ą	ǫ	ą
Pa	a;(z/h/l)ą	ą	ą	ą	ow/uw/o;(s)ǫ; (ø)ow/əw/u/ǫ	ą;(ʔw)a
VN	-	ą	ąŋ	-	ąŋ	a
Oz	-	ą	ą	ą	-	-
Ll	ən;(ʔy)en	ən	ǫn	ǫn	a·n	a·n
Lc	an	-	ąn	ǫn	an	-
Pe	(gʷ)an	-	-	-	a	-
To	(ʔy)an	-	-	-	-	-
RC	-	-	-	-	-	-
A	(z/ʔy)an	-	ǫn	ǫn	-	-
Le	ay	-	ąy	ąy	a·y;(y)e·y	ay
Qi	-	(ʔy)ei	ąi̧	ąi̧	aih;(z)eih	(gʷ)oih; (z)eih
Y	-	-	ąŋ	ą	aŋ	-
Tm	-	-	-	-	-	-
Co	-	(z)e	ąŋ	ąŋ	a·ŋ;(z)e·ŋ	-

	*ą·ŋ	*ą·ʔŋ
Oj	ą	ą
U	ǫ;(kʷ)ę	([m])ụę
Tl	ǫ;(kʷ)ụ	-
Ch	ǫ	-
M	-	-
S	ǫ	-
Qe	-	-
Z	-	-
Tp	ǫ	(ʔm)ụ
Pa	ǫ	ą
VN	(y)ę	-
Oz	-	-
Ll	ą·n	ą·
Lc	-	-
Pe	-	-
To	-	-
RC	-	-
A	-	-
Le	-	-
Qi	ąịh	-
Y	-	-
Tm	-	-
Co	ą·ŋ	-

	*iu	*iu̧	*iu·
Oj	i	i̧	i
U	ei;(k)i	ẹi̧;(ŋ/ʔŋ/hŋ)i̧	ai
Tl	i;(t/k)yu/i;(hl)yu	i̧	ay;(k/h/ø)i
Ch	yu	yu̧	i;(s)ey
M	yu	yu̧	i
S	yu	yu̧	ei
Qe	i;(t)yu	yi̧;(s)ẹi̧	ei;(s)ai
Z	yu	yi̧	-
Tp	i;(z)e	(k/s/ʔn)ẹ;(ŋ/ʔŋ/hŋ)i̧;(hn)ẹi̧	ei
Pa	yu;(z)yo	yu̧/yi̧;(ŋ/ʔn/ʔŋ/hŋ)yu̧	yu/yew/ew
VN	yu	yu̧	(h)ui
Oz	(t)ɨ;(k)ye;(z/s)ˇu;(hl)ö	ẹ;(s/ʔŋ/hŋ)ˇu̧	ö
Ll	(t)ö;(k)yö;(z/s)ˇö	ö̧;(s/ŋ/ʔŋ /hŋ)ˇö̧	ö·
Lc	ö	(s/ŋ/ʔŋ)ˇö̧	ö
Pe	ö	(ŋ/ʔŋ)ˇö̧	ö
To	ö	(s/ŋ/ʔŋ)ˇö̧	ö
RC	ö	(ŋ/ʔn)ˇö̧	ö
A	ö	ö̧;(ʔn)ˇö̧	ö
Le	yu;(z)ˇu	(s/n/ŋ/ʔn/ʔŋ)ˇu̧	yu·;(s)ˇu;(ø)i·
Qi	yü;(t/z)ü	(s/ŋ/ʔn)ü̧	üh;(h)ˇüh
Y	yü;(t)ü	(ʔn/ʔŋ)ü̧	(h)ˇü
Tm	yu	-	-
Co	ö;(k/ʔ/z)iö	(s/ʔn)ö̧;(ŋ/ʔŋ/hŋ)iö̧	ö·;(k)iö·;(h)yö·

	*iu̯·	*iuʔ	*iu̯ʔ	*iu·ʔ
Oj	i̧	-	(ŋ)i̧	i
U	ą̇i̧;(k/ŋ/ʔŋ/hŋ)ę̇i̧	(s)ai	(ŋ)ę̇i̧	ei
Tl	ąy;(ŋ/ʔŋ/hŋ)i̧	(s)ay	(ŋ)yu̯	ay;(t)yu/i;(k)i
Ch	ęy;(k/hŋ)i̧	(s)ey;(k)i	(ŋ)yu̯	yu
M	(k)yę̇i̧;(n)ą̇i̧;(ʔŋ)i̧;(hŋ)ę̇i̧	(k)i	(ŋ)yu̯	yu
S	(s/n)ę̇i̧;(k/ʔŋ/hn/hŋ) yę̇i̧;(ʔn)yę	(s)e;(k)yei	(ŋ)yu̯	yu
Qe	ą̇i̧;(k)yę̇i̧;(ʔŋ/hn/hŋ)yą̇i̧	ai;(k)ye	-	ei/e/i
Z	(n)ę̇i̧	-	-	-
Tp	(s/n/ŋ/ʔŋ/ʔn/hn/hŋ)ę̇i̧	-	ę;(ŋ)i̧	i;(s)i/ei
Pa	ęw;(k/ŋ/ʔŋ)yi̧w/yęw; (s)yąw	yu/ye	(ŋ)yę	yu;(k)yew/yu
VN	u̧i̧;(k/ʔ/ʔŋ/hŋ)yu̯	-	(ŋ)u̯i̧	u/yu;(h)ui
Oz	(k)yę;(n)ö;(ŋ)yu̯; (ʔn)ę̇i̧;(ʔŋ)ˇö;(hŋ)i̧	-	-	ö
Ll	ö·;(s/ʔŋ)ˇö·	ö	(ŋ)ˇö	ö·
Lc	ö	-	-	-
Pe	ö	-	-	ö
To	ö;(s)ˇö	-	-	ö
RC	ö	-	-	-
A	(s)ö	-	-	ö
Le	ˇu̯·	yu	(ŋ)yu̯	yu·;(s/h)ˇu·
Qi	(ŋ/ʔŋ)ˇü̯h	-	(ŋ)ˇü̯	üh;(k)yüh; (h)ˇüh
Y	(k)yü̯	-	(ŋ)ˇu̯	yü;(h)ˇü
Tm	-	-	-	-
Co	ö·;(ŋ/ʔŋ/hŋ)iö·	ö	-	ö·;(k)iö·;(h)yö

	*iu̧·ʔ	*iuŋ	*iuʔŋ	*iu̧ŋ	*iu̧ʔŋ
Oj	i̧	-	-	-	-
U	ą̈i̧;(ŋ)ę̈i̧	-	-	-	(ʔŋ)i̧
Tl	ąy;(ŋ)ęw	(ʔ)yǫ;(hl)yęw	-	-	-
Ch	ęy	-	-	-	-
M	-	-	-	-	-
S	yę	(k)yu̧	-	-	-
Qe	yą̈i̧	-	-	-	yą̈i̧
Z	-	-	-	-	-
Tp	ę;(ŋ)i̧	-	-	-	i̧
Pa	yǫ/yu̧;(s/ŋ/ʔn)yu̧	yuw;(z)yow	-	(k/ŋ)yǫ	yǫ
VN	yu̧,u̧i̧	yuŋ	-	(k/ŋ)yu̧ŋ	yu̧
Oz	ę;(ʔŋ)ˇu̧	-	-	-	ˇu̧
Ll	ö·;(s)ˇö·	(t/hl)ön;(ʔ)yun; (z)ˇun	-	(k/ŋ)yu̧n	ˇu̧n
Lc	ǫ̈	-	-	-	u̧n
Pe	-	(ʔ)ön	-	-	-
To	-	-	-	-	-
RC	-	-	-	-	-
A	ǫ̈	(z)ˇun	-	-	-
Le	(s)ˇu̧·	yuy	-	(ŋ)ˇu̧y	-
Qi	-	(ʔ)yui	-	(k)yu̧i̧	ˇu̧i̧
Y	-	-	-	-	-
Tm	-	-	-	-	-
Co	iö·;(s)ö·	iuŋ	-	-	iǫŋ

	*iu·ŋ	*iu·ʔŋ	*iu̯·ŋ	*iu̯·ʔŋ
Oj	-	-	-	-
U	-	-	(k)i̯	-
Tl	(ø)ę̨y	-	-	-
Ch	-	-	-	-
M	-	-	-	-
S	-	-	-	-
Qe	-	-	-	-
Z	-	-	-	-
Tp	ę	-	-	-
Pa	(t)yuw	(k)yuw	(k/s)yǫ	-
VN	yuŋ	-	yu̯ŋ	-
Oz	-	-	-	-
Ll	u·n	yu·n	(k)yu̯·n	-
Lc	-	-	-	-
Pe	-	-	-	-
To	-	-	-	-
RC	-	-	-	-
A	-	-	-	-
Le	u·y	-	-	-
Qi	(h)ˇuih	-	yu̯i̯h	-
Y	(h)yun	-	-	-
Tm	-	-	-	-
Co	-	-	iu̯·ŋ	-

	*ia	*iạ
Oj	ya;(z)ˇa;(l/ʔl)a	yạ;(ʔn/hn)ạ;(ʔŋ/hŋ)ˇạ
U	ia;(z)ʸa	iạ;(ʔŋ/hŋ)ˇạ
Tl	ya	yạ
Ch	ya	yạ
M	ya	yạ
S	ya;(z)i	yẹ;(hn)ạ;(ʔŋ/hŋ)yạ
Qe	ya	yạ;(hn)ạ
Z	ya	(hn)ạ
Tp	ia	iạ
Pa	yi	yị;(hn)ị
VN	(z/l/ʔl)e;(g)ya;(s/h)ye	ẹ;(hn)ạ;(ʔŋ/hŋ)yẹ
Oz	(t/l)a;(g)ya;(s)ˇa	(k)yẹ;(n/hn)ẹ;(ʔŋ/hŋ)ˇạ
Ll	yä;(t/h/l)ä;(z/s)ˇa	(n/hn/h[ŋ])ẹ;(ʔŋ/hŋ)ˇẹ
Lc	ya;(z)ˇa;(l)a	ẹ;(k)yẹ;(ʔŋ/hŋ)ˇẹ
Pe	ya;(z)ˇa;(g)ye	ẹ;(ʔŋ/hŋ)ˇẹ
To	ya;(z/s)ˇa;(l)a	ẹ;(k)yẹ;(ʔŋ/hŋ)ˇẹ
RC	(g)ya	(ʔŋ/hŋ)ˇẹ
A	ya;(z)ˇa;(s/l)a	ẹ;(k)yẹ;(ʔŋ/hŋ)ˇẹ
Le	ya;(z/s)ˇa	yạ;(n/ʔŋ/hn/hŋ)ˇạ;(h[ŋ])ẹ
Qi	(t/s/l)a;(g)ya	(ʔŋ/hn/hŋ)ˇạ
Y	(z/g)ye;(s/h/l/ʔl)e	(ʔŋ)ˇẹ;(h[ŋ])ẹ
Tm	(s)a	(hn)ạ
Co	ia	(k)iẹ;(ʔŋ/hb/hŋ)iạ

	*ia·	*ią·
Oj	ye;(t/s/l/ʔl)e;(z)ˇe	ę;(k)ị
U	ie	ịę
Tl	yew/yo;(t/k/g)yu;(s)yo/yu	(n)yęw;ʔnyǫ
Ch	(t)yu;(s/l/ʔl)yo;(g)yo/yu	yǫ
M	(t/g/ʔl)i;(k/z)ye;(s)ya	(n)ị
S	yo;(s/g)yo/yu	(n)yǫ
Qe	yu	(n)yụ
Z	(ʔ)o	-
Tp	iog/io	(n/ʔn)iǫ;(ʔŋ/hn/hŋ)iǫg
Pa	yaw/yew/yo;(z)yew; (l)yo/yaw/ew;(ʔl)ew	yụ/ęw;(n)ęw/yǫ/yąw;(ʔŋ)yęw;(hn/hŋ)yąw
VN	(t)ye;(ʔ/ʔl)o;(g)ye/yu; (s)ye/yo;(l)ya	(n)yǫ;(h[ŋ])ǫ
Oz	ö;(k)yu;(g)ye;(z/s)ˇo	ǫ̈
Ll	ä·;(k/g)yä·;(z/s)ˇo·	ę·;(k)yę·;(ʔŋ)ˇę·
Lc	a;(k/g)ya;(z/s)ˇa	ę
Pe	a;(g)ye;(z/s)ˇa	ę;(h[ŋ])ą
To	a;(k/g)ye;(z/s)ˇe	ę
RC	a;(g)ya;(z/s)ˇa	ę
A	a;(k)i;(z)e;(g)ye	ę;(k)ị
Le	ya·;(ʔ/h)e·;(z/s)ˇa·	(t)yą·;(ʔ/h[ŋ])ę·;(z)ˇą
Qi	ah;(k/z/g)ʸiah;(h)eh	ąh;(k)ʸąh
Y	a;(k/z/g)ye	ą
Tm	-	-
Co	e·;(k/z/g)ie·	ę·

	*ia?	*ią?	*ia·?	*ią·?
Oj	e;(k)i	(?ŋ)ˇę	ya;(z)ˇa;(l)a	ą;(s)yą
U	ie	ịǫ	ia;(z)a	ịą
Tl	yo	-	ya	(?n/hn)ą;(s)yą
Ch	yo	-	ya	(?n/hn)ą;(s)yą
M	ye	-	ya	(?n/hn)yą
S	yo	(?n)yǫ	ya	(?n/hn)ǫ;(s)yą
Qe	yu	-	ya	(s)yą
Z	-	-	a;(l)ya	-
Tp	io	iǫ	ia	ią
Pa	(k/g)ya;(z/l)yo; (s)yu	(n)yǫ;(?n)yụ; (?ŋ)yą	yi	yị;(?n)yą
VN	e	-	e;(z/s/l)ye	(hn)ǫą
Oz	ö	-	a;(z)ˇo;(s)ˇa	(?n)ą;(hn)ę
Ll	yä;(k)ye;(z/s)ˇo; (l)ä	ę	ä·;(k)ya·;(z/s)ˇo·	(s)ˇę·;(?n/hn)ę·
Lc	a;(z)ˇa	-	a;(z/s)ˇa	-
Pe	e;(z)ˇe	-	a;(z/s)ˇa	(s)ˇę
To	a/e;(z)ˇe	-	a/ye;(z/s)ˇe	(s)ˇę;(hn)ę
RC	-	-	(l)a	-
A	a/e;(k)i;(z)e	-	a;(s)e	(s/?n)ę
Le	ya;(z)ˇa	(?)ę	ya·;(z/s)ˇa·	(s/?n)ˇą
Qi	ya;(z)ʸa;(hl)a	(k)yą;(?ŋ)ˇą	ah;(k)ʸiah;(z)ʸia	(?n/hn)ąh
Y	ye;(s)e	(?ŋ)ˇę	a	(hn)ą
Tm	-	-	-	-
Co	ia	-	e·;(k/z)ie·	(s/hn)ę·

	*iaŋ	*iaʔŋ	*iąŋ	*iąʔŋ
Oj	yą	(z)ˇą	(ʔŋ/hŋ)ˇą	(ʔn)ą
U	ịą	(z)ą	-	-
Tl	yą	(z)yą	-	-
Ch	yą	(l)yą	-	-
M	-	-	-	-
S	yą	yą	-	-
Qe	yą	-	-	-
Z	-	-	-	-
Tp	ią	ią	(hŋ)ią	-
Pa	yą;(g)yaw	yow/yo;(z)yą; (l/ʔl/hl)ya	(ʔŋ)yąw; (hn/hŋ)yą	(ʔn/hŋ)yą
VN	(z)yą;(g)yaŋ	-	yąŋ	-
Oz	(s)ˇą;(l)yą	-	(hŋ)ˇą	(hŋ)ˇụn
Ll	(k)yen;(z/s)ˇen; (l)en	an;(z)ˇen;(l)en	(ʔŋ)ˇẹn;(hn/ h[ŋ])ẹn	(ʔn/h[ŋ])ẹn
Lc	(g)yan;(s)ˇan	(z)an	(ʔŋ)ˇạn;(h[ŋ])ạn	-
Pe	-	-	-	-
To	(s)ˇan	-	-	-
RC	(s)ˇen	-	-	-
A	(s)an	-	(hn)ẹn	-
Le	(g)ye;(s)ˇey	(z)ˇa;(l)yey	([ʔ])ŋ)ˇẹ	(hŋ)ẹy
Qi	(g)yei;(s)ei	-	(ʔŋ/hŋ)ˇẹị	-
Y	(s)eŋ	-	-	-
Tm	-	-	-	-
Co	-	(l/hl)eŋ	-	([ŋ])ẹ

	*ia·ŋ	*ia·ʔŋ	*ią·ŋ	*ią·ʔŋ
Oj	(t)ą;(g)yę	(t)ą	-	-
U	ịǫ;(k)ịę;(z)ʸǫ	ịą	-	(ŋ)ịǫ
Tl	yǫ;(t)ǫ	(t)o	-	-
Ch	-	-	-	-
M	-	-	-	-
S	yǫ	-	-	-
Qe	yǫ	-	-	-
Z	-	-	-	-
Tp	iǫ;(k)ią	iǫ	iǫ	-
Pa	yuw/yǫ;(t)yą; (g)yow/yụw; (s/ʔl)yow	yą;(z/l/ʔl)yaw; (s)yuw	yǫ	yą;(hŋ)yǫ
VN	yoŋ;(g)yeŋ/yuŋ;(s)yaŋ	-	-	-
Oz	(k)yą	-	-	-
Ll	e·n;(ʔ/ʔl)ä·n; (g)ya·n;(z/s)ˇa·n	e·n;(z/s)ˇa·n	ye·n; (hn/h[ŋ])ę·n	ye·n;(ŋ)ˇa·n
Lc	(g)yan	-	-	-
Pe	-	-	-	-
To	-	-	-	yą
RC	-	-	-	-
A	-	-	-	-
Le	ye·y;(g)ya·y;(s)ˇe·y; (ʔ/l/ʔl)e·y	-	-	-
Qi	aih	-	(hn)ę̨ih	-
Y	(g)yeŋ	eŋ	-	-
Tm	-	-	-	-
Co	e·ŋ	(z)a·ŋ	(h[ŋ])ę·ŋ	-

[blank]

Appendix C:
Reflexes of Proto Chinantec Prosodic Elements

	*CV	*CV?	*CV·	*CV·?	*CV́	*CV́?	*CV́·	*CV́·?
*H								
Oj	1		31	1	1	1	1	1
U	2	2	32	32	23	2	23	2
Tl	2;42*		4;12;í	1	í	í	í	í
S	1		3	3	12	32	12	í
TP	1;21*		21;1	31;21*	í	í	í	í
Pa	1		1	1	í	í	í	í
Ll	2	2	2	2	2h	2	2h	2
Le	2		2	2	í		í	í;2́
Qi	2		2	42	1	1	1	1
Co	1		1	21	í	1	í	í
*L								
Oj	2		2	2	3	3	3	3
U	3		3	3	4	4	4	4
Tl	3		3	4	3́	3	3́	3́;2́
S	2		2	2	23	23	23	3
Tp	2		2	2	2́		2́	2́
Pa	2		2	2	2́	2	2́	2́
Ll	3		3	3	3h	3	3h	3
Le	3		3	3	3́		3́	3́
Qi	34		23	23	24	23	3	34
Co	12		2	12́	12́	í	2́	12́

*Regular reflex that occurs in Tl and Tp in obligatorily possessed nouns.

	*CV	*CV?	*CV·	*CV·?	*CV́	*CV́?	*CV́·	*CV́·?
***HL**								
Oj		2	2	2	4		4	4
U		3	23	3	34		34	5
Tl		4	4́	4	2́		2́	3́
S		23	2	2	23		23	
Tp		2	2	2	3		3	3;3́
Pa		2	2	32	3		3	3;3́
Ll		2	23	23	23h		23h	23
Le			4	4	4́		4́	4́
Qi		4	4	4	34		3	
Co		12́	12́	1	2́;1́		2́	12́
***LH**								
Oj	2	3	2	2	3	4	2	4
U	3	3	3	3	43	43	43	
Tl	4́	4́	4́;34	4	3́	4́;4	4́	3́;4
S	32	32	32	32	23	23	2	
Tp	32	32́	32	2	32́	32́	32	
Pa	32	32	32	32	32́	32	32	
Ll	3	2	3	3	2h	2	2h	
Le	3	2	3	3	2́	2́	2́	
Qi	4	4	4	4	3	3	43	
Co	2	2	2	2	21́	2	21́	

*HLH	*CV	*CV?	*CV·	*CV·?	*CV́	*CV́?	*CV́·	*CV́·?
Oj			31	31			31	
U			1	32			2	
Tl			42	42			2	
S			1	1			1	
Tp			21;1	31			21;1	
Pa			1	1			1	
Ll			232	232			2h	
Le			42	42			í	
Qi			242				242	
Co			12				12	

Studies in Chinantec Languages 1

Publications in Linguistics 87

This *Chinantec Etymological Dictionary* inaugurates a subseries of SIL and UTA Publications in Linguistics which focuses upon the Chinantec languages of Mexico, one of the major branches of the important Otomanguean stock of tone languages of Mesoamerica. The Chinantec languages comprise fourteen languages spoken by an excess of 60,000 people who reside in the northeast quadrant of the southern Mexican State of Oaxaca.

In the Etymological Dictionary, Dr. Rensch provides an updated version of his *Proto Chinantec phonology* (1983) and presents, in more complete fashion, the extensive etymological evidence which underlies his Proto Chinantec reconstructions. It, thus, forms an important companion to his *Comparative Otomanguean phonology* (1976).

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